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Potential Impact

of the

DELAWARE WATER GAP
NATIONAL RECREATION AREA

on its

SURROUNDING
COMMUNITIES

New Jersey's co-sponsorship of the preparation of this report was financially aided through a Federal grant from the Urban Renewal Administration of the Housing and Home Finance Agency, under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended.

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POTENTIAL IMPACT OF THE
DELAWARE WATER GAP NATIONAL RECREATION AREA
ON ITS SURROUNDING COMMUNITIES

A report to the State Planning Board
of the Commonwealth of Pennsylvania
and the
Department of Conservation and Economic
Development of the State of New Jersey

Robert R. Nathan Associates, Inc.
Washington, D. C.
February, 1966

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CHAPTER I. SUMMARY

Creation of a National Recreation Area in the Delaware River Basin as part of the multi-purpose Tocks Island Dam and Reservoir project will present the surrounding communities with both opportunities and problems. This study was commissioned in recognition of the significant changes that may occur.

The Pennsylvania State Planning Board and the New Jersey Department of Conservation and Economic Development, concerned with the impact that the Delaware Water Gap National Recreation Area (as the facility has been titled by Congress) may have on the economy and land use pattern of its vicinity, retained Robert R. Nathan Associates, Inc. to estimate the scale and nature of the impact. With this analysis as a base, the two agencies are preparing sketch plans of the impact area and other activities to assist local communities in channeling the effects of DWGNRA.

The study began during the summer of 1964, upon the signing of a contract with the State of Pennsylvania. Later a contract was executed with New Jersey for identical services, assisted by a grant from the Housing and Home Finance Agency under its "701" program.

In addition to the two client agencies, other public bodies and private organizations have cooperated in the execution of this study. Close contact has been maintained with the National Park Service which will design the Recreation Area, the Corps of Engineers who will construct the dam and reservoir and acquire the recreation land, the Delaware River Basin Commission, and the Water Resources Association

of the Delaware River Basin. The New York State Office of Regional Development has been an interested and active participant in the study, as has the New York Regional Plan Association. Local officials of Pike and Monroe Counties in Pennsylvania, Sussex and Warren Counties in New Jersey, and Orange County in New York, were consulted for information and ideas. Dr. Marion Clawson, of Resources for the Future, advised the Consultants at various points in the study.

This report presents the results of the consultants' investigation. Chapter II describes the multi-purpose Tocks Island dam and reservoir project and the National Park Service program for ten recreation areas within the 72,000 acre territory. It outlines the present state of planning and financing for the project and the procedures to be used in acquisition of land, relocation of public facilities, and administration of the Recreation Area.

The forces emanating from the New York and Philadelphia Metropolitan Regions that will influence economic and land use development in the DWGNRA vicinity as well as utilization of the recreation facilities are examined in Chapter III.

The number of visitors are estimated and their expected areas of origin, mode of travel, destinations within the park, and other relevant characteristics are analyzed as well.

Chapter IV focusses on the economy and population of the area whose future is most closely bound up with DWGNRA: the DWGNRA Pike, Monroe, Warren, and Sussex Counties. It assesses their prospects for economic growth, independent of impact from DWGNRA, and provides some estimates of future population and dwelling unit increases. Relationship to

the Tocks Island complex of Orange County, New York, which will have a portion adjacent to the Recreation Area, is discussed.

Chapter V examines the economic effects of DWGNRA, quantifying those aspects of the impact which can be measured and identifying the types of direct and indirect benefits that are contingent on public or private action.

Chapter VI delineates the "primary" impact area in which effects of DWGNRA may be most apparent on land development. It examines the capacity of present and planned roads within this area to carry expected levels of traffic. The chapter also assesses the capability of the communities affected to channel the potential commercial and residential development under their present planning and land control provisions.

Chapter VII recommends programs and policies to guide future growth in the DWGNRA region.

The main conclusions of these chapters are summarized below:

1. Interstate Highways and other expressways to provide speedy connections between the DWGNRA area and Metropolitan New York and Philadelphia will have the most profound influence on the use of DWGNRA itself and the nature of development in its surroundings. By 1972, the area will be little more than one hour's drive from New York City and about two hours from Philadelphia.

2. Forces of metropolitan expansion and access are already being felt in the counties that

border the recreation facility. This is evidenced by a significant spread of suburbanization into Orange, Sussex, and Warren Counties and an extensive amount of subdivision for vacation or "second" homes in Pike and Monroe.

3. In Pennsylvania, the traditional resort economy of the Poconos has been bolstered by the growth in vacation homes. The 1960 year-round population of Pike and Monroe Counties was about 50,000. During the summer, between the resorts and summer camps and the second home population, the total rises by about 100,000.

4. The seasonality of resort employment has been partially balanced by growth of industries, particularly in Monroe County, and by efforts of the resort owners to extend operations on a year-round basis. Nonetheless, there are still sharp seasonal fluctuations due to predominance of summer patronage.

5. Land values in the two counties have risen sharply as the result of the land development and subdivision. This is a rise essentially independent of the future DWGNRA and attributable largely to improved access and rising metropolitan incomes. Provision of services and tax rates have not increased commensurately.

6. It is estimated that by 1985 the year-round population of Pike and Monroe Counties can grow to 112,000. Summer home residents may swell this figure by an additional 87,000-126,000. The two counties may then have a summertime residential population of about one quarter million, exclusive of resort and camp population.

7. Accommodations for this increased population would represent a level of dwelling unit construction between 1960 and 1985 of about 27,000. Half of these would be vacation homes.

8. The two New Jersey counties had a combined population in 1960 of about 112,000. Although they are major centers of dairy farming, the importance of dairying is diminishing and extensive suburbanization is already apparent. Local industrial development is increasing, and a growing number of people commute from the area to jobs in the metropolitan region.

9. Land values are rising sharply in the New Jersey counties as well as in Pennsylvania, again independently of a DWGNRA impact. Tax rates tend to be higher here, because of the necessary provision of services to larger numbers of year-round residents.

10. It is estimated that by 1985 the combined population of these two counties may reach 445,000, reflecting primarily overspill from the metropolitan area.

11. This would mean a potential construction of 90,000 dwelling units between 1960 and 1985.

12. Port Jervis, New York, is a small, predominantly manufacturing city of about 12,000 people. Its main growth prospects, so long as no DWGNRA development extends into Orange County, lie in expanding its industrial base. In this effort, Port Jervis will be significantly aided by improved access via the expressways.

13. When fully opened for use in 1975, DWGNRA will accommodate 123,500 persons at any given time in

a wide variety of activities. This capacity will be far below the estimated demand for outdoor recreation space in the service region. Demand is expected to exceed the capacity of all public recreation projects now planned or contemplated for many years to come.

14. The attendance level expected for DWGNRA is estimated at 10,500,000 annual visitor days. Given the high demand, this level should be reached within five years of the opening.

15. Of this number, about 47 percent will come from Metropolitan New York and New Jersey, about one-third from Philadelphia-Trenton. The remainder will be people from counties contiguous with the Park and from distances beyond a 150-mile radius.

16. About 70 percent of the visitations will be made on the New Jersey side of the development, and all but 10 percent of these to the two destination areas of Namanock and Walpack Bend.

17. Of the park users on the Pennsylvania side, all but about 10 percent will be concentrated at Poxono and Dingman's Gorge.

18. The great majority of the visitors will come to DWGNRA for the day, although camping within the park will be substantial, and there will be some use of lodging facilities outside.

19. Most of the visitors will travel by private car unless special efforts are made to stimulate bus transportation.

20. In terms of likely expenditures, the predominant pattern of day-use by regional residents is estimated to result in annual purchases of goods and

services of about \$28,500,000. This figure includes lodging and other expenditures by long-distance visitors as well. This level of expenditures is modest compared to other elements of the area economy. However, emphasis on unique facilities of high quality might induce higher levels of spending.

21. The estimated level of annual expenditures by Park visitors would probably support the following facilities: 40-80 restaurants, 2-3 grocery stores, 50-95 motel or hotel developments, 25-50 gasoline stations, and 35-60 other kinds of recreation service establishments from sporting good stores to summer theaters. These numbers, then, illustrate the direct impact of DWGNRA.

22. Land requirements for these facilities would be less than 400 acres. This compares with up to 20,000 acres which could be absorbed by the residential development estimated for the four abutting counties between 1960-1985. The importance of the DWGNRA-related land is far greater than its size, however, for it could influence the desirability and the value of neighboring territory for investment in high grade year-round development.

23. The amount of investment required to provide the commercial facilities noted above would range between \$21,000,000 and about \$45,000,000. New investment in housing for the four counties might, in contrast, amount to over \$1,000,000,000 between 1960-1985. A comparable sum might be required in addition to furnish supporting infrastructure for the residential communities.

24. The commercial and other facilities related to DWGNRA might provide jobs for as many as

4,700 people. Most of these jobs will be fairly low-paying, and fewer than 1,000 of the total can be considered permanent and year-round in nature. A substantial amount of construction employment will be generated by the Tocks Island complex, the facilities related to the Park, and most especially the residential development in the region. During the construction of the dam, reservoir, recreation area and appurtenant facilities, about 1,000 construction jobs would be provided. Residential development would generate up to 3,500 jobs annually during the peak years ahead, while other necessary public works might produce a similar number of jobs.

25. These employment opportunities would be available to people within commuting distance of the DWGNRA area, meaning that the effects would extend into Orange County, Northampton County and other communities outside the immediate impact area.

26. Much of the potential DWGNRA impact cannot be quantified. Expected levels of investment, employment, etc. can be exceeded. An emphasis on imaginatively conceived, high grade and aesthetically pleasing development in keeping with the region's character and the Park's purpose might improve economic prospects as well as conserve the environment.

27. The primary impact area of land development is delineated as that territory bounded by I-84 on the North, I-80 on the South, Pennsylvania 402-U.S. 209 to the West, and New Jersey 23-U.S. 206 to the East. It contains parts of the four abutting counties plus (depending on the final location of an I-84 interchange) a small corner of New York.

28. Present and planned roads within the primary impact area will be unable to handle the anticipated level of traffic to DWGNRA. Although the high-speed expressways will bring vehicles easily to the DWGNRA vicinity, a distributor system from the expressways to park entrances and between destination areas is lacking.

29. U.S. Route 209 in Pennsylvania will evidence the most severe traffic problems, since it must also serve as the main north-south connector for the Pennsylvania counties' general traffic. Sustained traffic volumes during summer months will be two to three times the capacity of relocated Route 209 as presently planned. Although destination areas in New Jersey served directly by Route U.S. 206 and N.J. 23 will be better able to absorb traffic demands, severe problems will occur on under-capacity roads southwest of 206. While the congestion is not expected to reduce levels of visitation substantially, it will have a deleterious effect on the environment.

30. Poor soil conditions in Pennsylvania make the anticipated levels of population and housing growth a source of pollution danger in the absence of planning, subdivision, and sanitation controls.

31. Absence of zoning and billboard regulations on the Pennsylvania side presents a real possibility that low-grade uses will predominate in the impact area.

32. The New Jersey counties and communities have a generally high level of planning and land control activity. This activity has not been coordinated however, insofar as the primary impact area is

concerned. Furthermore, some communities are without basic safeguards over land development and face the same dangers as Pennsylvania.

33. A number of the problems which will confront the DWGNRA area -- both as a result of the recreation project and from other developments - can be solved only at a region-wide scale. Among these are the traffic problems arising from the influx of the DWGNRA visitors and sightseers, the dangers of water pollution from virtually uncontrolled construction of housing in a number of localities, the land use conflicts that may occur when DWGNRA-oriented commercial development begins, the proliferation of billboards and other signs which tend to give a confusing and cluttered appearance.

34. Many of the opportunities for solving the problems and for maximizing the benefits which might come from all the new developments in the area will cease to exist once the influx of visitors has begun. Therefore all available resources for dealing with these short-run, area-wide situations should be mobilized without delay. Already the state planning agencies of Pennsylvania and New Jersey are working on sketch plans for the area. There are other possibilities for immediate action on the part of the Delaware Basin Commission and the Tocks Island Regional Advisory Council (TIRAC).

35. In the long run, TIRAC will be the most important vehicle for creating an effective, beautiful and economically sound environment in the DWGNRA region. Although the organization's powers are limited, it can begin immediately on a development program, on framing standards for design of commercial complexes and signs, and on obtaining an adequate set of traffic solutions.

II. BACKGROUND AND NATURE OF THE PROGRAM

On September 1, 1965, President Johnson signed P.L. 89-158, the Act authorizing a vast National Recreation Area in the Delaware River Valley around the previously authorized Tocks Island Dam and Reservoir. His action capped many years of effort by both public agencies and private citizens to establish what will now be called the Delaware Water Gap National Recreation Area. This chapter will describe the salient aspects of DWGNRA program and its background and will point up matters still to be decided which will affect the character of DWGNRA and its impact on surrounding communities.

HISTORICAL BACKGROUND

The Delaware River flows through four states, (New York, Pennsylvania, New Jersey, and Delaware) and for many generations has provided them an important source of water supply and recreation. Despite various attempts at cooperative management of the river, no really comprehensive plan for development of the Delaware and its tributaries was undertaken until after the hurricane and floods of 1955. In this disaster, 99 people were killed and property damage amounted to \$100,000,000.

Shortly before the disaster a Delaware River Basin Advisory Committee had been created, consisting of representatives of the four state governors and mayors of New York City and Philadelphia. The big flood had a major catalytic effect on the work of this committee and on the Corps of Engineers as well. The later group began work on a comprehensive water resource development plan for the Basin.

Corps of Engineers Plan

In 1960, the Corps' plan was completed; a massive 11 volume report proposing a 50 year, \$591,000,000 program of 58 projects. The projects were to produce and control water supply, to augment stream flow, to provide flood control and recreation and to generate conventional hydro-electric power.

One of these projects (the largest), was a multi-purpose dam at Tocks Island, about five miles above the scenic Delaware Water Gap and some seven miles northeast of Stroudsburg, Pennsylvania. The dam would create a reservoir from the Delaware for 37 miles along the Pennsylvania and New Jersey borders until the river turned westward at Port Jervis, New York. Recognizing the outstanding recreational potential of such a large lake less than 100 miles from the New York and Philadelphia metropolitan areas, the Delaware River Basin Commission made a supplementary proposal in their first comprehensive report. They recommended that the Federal Government should take a substantial amount of land around the entire perimeter of the project and create the first inland, water-based, National Recreation Area for the Northeast United States.

The omnibus Corps report was a plan involving activities of many agencies and jurisdictions, but no official intergovernmental body was in existence to coordinate implementation.

Delaware River Basin Commission

Then, in 1961, President Kennedy signed an act creating the Delaware River Basin Commission. This significant compact, involving partnership of

the Federal Government and the four states, provided an instrument to direct future water utilization in the Basin. The DRBC was empowered to formulate and maintain a comprehensive plan for water resource development, to approve all projects, both public and private, that affected water supply and utilization of the region; and to adopt regulative or restrictive measures preventing contamination or other misuse of the river and its tributaries.

The Commission was to conduct continuing research on the Basin's population and activities, on water technology, and on financing of projects. It could also construct and operate hydro-electric power facilities.

Shortly after its formation, the Commission adopted as its first-phase comprehensive plan 20 projects. ^{1/} The location of these projects and the area of DRBC jurisdiction are shown on Figure 1.

In 1964, the total cost of this first-phase plan was estimated at \$340,000,000. Several of the watershed projects are now under way, and Congress has already authorized construction of eight of the 12 reservoirs, including Tocks Island.

Citizen Participation The Water Resources Association

It is important to note that active citizen participation accompanied the Corps' plan, the formation of DRBC, and its subsequent activities.

^{1/} Twelve of these projects were in the Corps of Engineers' report. Six were local watershed projects sponsored by the Soil Conservation Service and two were, in effect, Pennsylvania State projects.

The Delaware River Basin Water Resources Association, with headquarters in Philadelphia, counts prominent individuals and community groups among its members throughout the four-state area. It pressed to create the Commission and has performed a continuing review of its activities. It was one of the strongest and most constant advocates of the National Recreation Area.

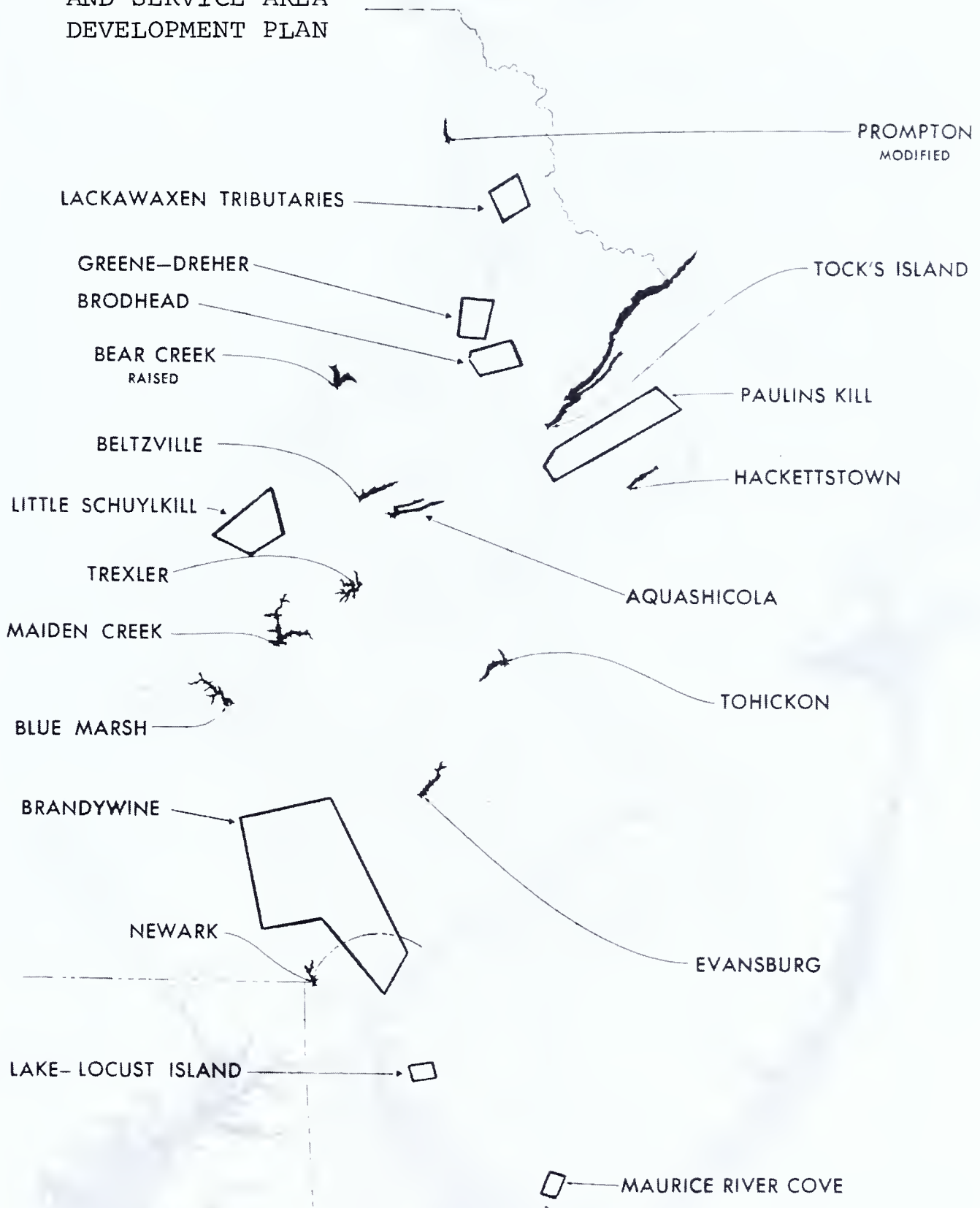
TOCKS ISLAND

This complex of activities is by far the largest and most diverse of the Basin plan. In the Flood Control Act of 1962, Congress authorized construction of the dam and reservoir and acquisition of 14,800 acres of land to be flooded by the impoundment. Total costs of this project, including pumped storage power facilities to be built by private companies as a supplement to the dam's conventional hydro-power system, but excluding indirectly related recreation facilities, were then estimated at \$146,000,000. The same act also authorized the Corps to acquire 9,500 acres along the proposed shoreline of the lake for recreational purposes and to construct recreational facilities on this land. Additional costs were estimated at \$18,280,000: \$8,080,000 for land and \$10,200,000 for facilities preparation. Thus, even if the NRA had not been approved, the lake and its immediate borders would have been developed for water-based recreation.

But the Recreation Area was approved by a special Act of Congress in the summer of 1965. It authorized acquisition of approximately 48,000 additional acres of land in Pennsylvania and New Jersey and construction of facilities according to the National Park Service program outlined below. Land

Figure 1

DELAWARE RIVER BASIN
AND SERVICE AREA
DEVELOPMENT PLAN



DELAWARE RIVER BASIN COMMISSION
COMPREHENSIVE PLAN
PHASE I.

MARCH 28, 1962

costs were estimated at \$37,412,000 and construction at \$18,200,000 for a total of approximately \$56,500,000. The previous authorizations will be incorporated into the NRA. Thus the total estimated cost to the Federal Government directly attributable to recreation will amount to almost \$75,000,000.

It is remarkable how rapidly land values in the area have risen over the past five years (since the proposal for a recreation program was announced). Perhaps this has happened in anticipation of the Federal takings. Between 1959 and a resurvey conducted by the Corps in 1964, the estimated acquisition costs for the recently authorized 48,000 acres rose from \$17,300,000 to \$37,412,000. Clearly, the delay has added substantially to the project cost. It is also probable that construction costs for facilities will have risen between the time of the original estimation and the time when actual construction will take place. In that event, total costs for dam, hydro-power, recreation, etc. will probably be well over \$200,000,000 by 1975, target date for completion of the entire complex of facilities.

Responsibility for land acquisition and for the construction of the dam and directly related recreation facilities rests with the Corps of Engineers. The National Park Service will plan, manage, and administer the Recreation Area itself, whose development will take place according to the Master Plan for land and water management and use required by Congress.

The Dam and Reservoir

After taking detailed borings and seismic surveys in 1964, the Corps decided to shift the dam site somewhat south of its original choice, and is presently fixing on a final alignment between Tocks and Labar Islands. Design work currently in progress is financed by a total of \$1,000,000 in Congressional

appropriations, including an emergency sum of \$400,000 ordered in the summer of 1965 by President Johnson in response to the drought danger in the Basin. Land acquisition will take place in stages, beginning in 1966. Construction will commence in 1967, and (now that the project has been accelerated) completion may come as early as 1972 or 1973.

Assuming that the basic design of the project is the same despite the slight shift of location, the following statements from the Comprehensive DRBC Plan describe the facilities and their non-recreational functions.

. . . The dam will contain about $3\frac{1}{2}$ million cubic yards of earth and rock, be 3,200 feet long, and rise 160 feet above the river bed to elevation 456. It will have a central impervious earth core extending into the foundation to a maximum depth of 30 feet below the base of the dam.

. . . An item has been included in the cost estimates for facilities for passing fish over the dam in the event pre-construction studies show the need for specific facilities for that purpose. Storage allocations . . . indicate 80,000 acre-feet of inactive long-term storage to elevation 356; 410,000 acre-feet of active long-term storage for supplies of water, power, recreation, and other uses to elevation 410; and 275,000 acre-feet of short-term storage for flood control to elevation 428. The reservoir, up to elevation 428, will extend approximately nine miles up Flat Brook and thirty-seven miles up the Delaware River to Port Jervis The town of Matomoras, Pennsylvania, at the upper end of the reservoir will be protected by a dike about 12,000 feet long

. . . Supplies of Water. Use of 410,000 acre-feet of active long-term storage at Tocks Island project will provide a net yield of 980 cubic feet per second. The augmentation of flow will contribute to the satisfaction of water requirements of the Trenton-Philadelphia area.

. . . Reduction of Flood Damage. The 1955 flood damages in the reach from Tocks Island to Burlington, New Jersey exceeded 85 percent of the total damages from the main stem of the Delaware River The flood control storage provided at Tocks Island and other projects in the comprehensive plan will reduce, by system operation, the stage of the 1955 flood at Trenton by about six feet 2/

One aspect of the reservoir development is still unclear at this writing and may have bearing on the nature of some recreation activity: That is the exact distance, if any, which the reservoir will extend up the Neversink River beyond the urbanized area of Port Jervis, New York.

Hydro-electric Power

Hydro-electric generating facilities to be allied with the dam are also still at issue. This is the biggest question mark on the whole program, and the answer may also affect recreation.

2/ As reported in "The Facts About Tocks Island", Water Resources Association of the Delaware River Basin, Philadelphia, 1964, pp. 4-6.

Most power in the Delaware Basin is steam generated, with only seven percent produced by conventional hydro-electric installations. The Corps of Engineers proposed, however, that the electric generating potential of Tocks Island Reservoir be utilized, and Congress in 1962 authorized installation of a conventional generator system of 46,000 kilowatts, with a dependable capacity of 20,000 kilowatts, and average annual production of 281,500,000 kilowatt hours.

In addition, the Corps' survey indicated that a "pumped storage" system of power generation was feasible. This would be constructed in separate installations, perhaps by private power companies, but would be linked with the conventional system at the dam. The original plan called for a pumped storage scheme with an installed capacity of 366,000 kilowatts, a dependable capacity of 342,000 kilowatts and an average annual production of 732,000,000 kilowatt hours.

Pumped storage is a means of providing the "reserve" of power needed by a generating network during periods of peak demand, unforeseen breakdown, or other contingencies.

Pumped storage, which became economically feasible in recent years through the development of a single piece of machinery that both pumps and generates is a means -- the only known significant means -- of storing, as in a battery, electric energy generated at periods of low customer usage for supply to them at later periods of relatively high customer usage Essentially it involves (1) an upper reservoir, (2) a lower reservoir, (3) a conduit between the two reservoirs through

which water can be transferred in either direction between the two reservoirs, and (4) a pump-generator which can initially pump water through the conduit from the lower reservoir to the upper reservoir . . . and subsequently when the water is released from the upper reservoir through the conduit, use the energy of the falling water to generate electricity. The water is simply recirculated between the two reservoirs in this fashion and, once the initial filling has taken place, there is no need for additional water except that lost by evaporation, which is generally supplied by normal rainfall.

Pumped storage does not require a large source of water If a natural or man-made lake is available for the purpose, it can be used as the lower reservoir and reduce the cost of the pumped storage installation . . . the lake created by the dam could be used as the lower reservoir. 3/

Even before the Tocks Island dam was proposed, private electric companies in New Jersey were interested in using the elevation of the Kittatinny Mountains combined with certain watercourses for pumped storage purposes. A consortium of three companies requested permission to build the installations proposed with Tocks Island, and acquired from the State of New Jersey land that would be needed for facilities.

3/ "Delaware Basin Bulletin", Water Resources Association of the Delaware River Basin, Philadelphia, October, 1963, vol. 4, no. 4, p. 3.

Although the Basin Commission did not act on this request, it did approve a separate pumped-storage project at Yards Creek in the Blairstown area, to generate 330,000 kilowatts. This project and its attendant reservoirs are now under construction. Its sponsors hope to integrate Yards Creek with pumped storage facilities at Tocks Island.

Now the power companies' proposal indicates a far more optimistic estimate of potential generating capacity than the original Corps' study. Using more sophisticated techniques, a capacity of 1,300,000 kilowatts can be achieved (compared with the initial estimate of 366,000) at a cost of \$93,000,000. Due to the southward change of the dam site and a prospect for utilizing somewhat different machinery, the need for a separate installation to generate conventional power may be eliminated.

Under the amended proposal, there would be three adjacent pumped storage upper reservoirs on top of Kittatinny Mountain. The first of these, now built, presently operates the Yards Creek pumped storage plant (the lower Yards Creek reservoir would be the starting point for the proposed water conduit to Round Valley). Adjacent to the Yards Creek upper reservoir, separated by a common dike and connected by a conduit, would be built a similarly sized reservoir at the same level in what is now a swamp area. Adjacent to this second reservoir, but at a level lower by 100 feet is Sunfish Pond ... as the third reservoir would be diked to contain the same volume of water as the other two.

A tunnel and penstock would connect each upper reservoir to a single powerhouse located immediately below the Tocks Island dam. This power station would house five pump storage units, each of the same general size, but three of which would be equipped with special facilities to make it possible to utilize energy from all downstream flows made from the dam. 4/

Figure 2 shows location of these reservoirs and facilities.

Several knotty problems of financing and responsibility remain to be worked out; and the DRBC and Corps may now have to rethink the entire approach to power generation in the area. The evaluations and decisions will have to come fairly soon, however, certainly before final design and construction of the big dam commence.

The final decision will influence use of the recreation resources at DWGNRA. For all the proposed pumped storage reservoirs would be inside DWGNRA boundaries. The power companies have publicly stated their support for the use of these reservoirs as additional recreation facilities. Their desire is disputed by conservation authorities who claim that the rise and fall of water in these impoundments would be destructive to animal and fish life and dangerous for human beings. Opponents bolster their

4/ "Delaware Basin Bulletin", Water Resources Association, September, 1965, vol. 6, no. 1, p. 10.

contention by pointing out that Yards Creek Reservoir has been barred to public use. Whatever the Basin Commission's decision, it must be also made before the National Park Service can complete its land and water use plan.

THE RECREATION AREA -- DESCRIPTION

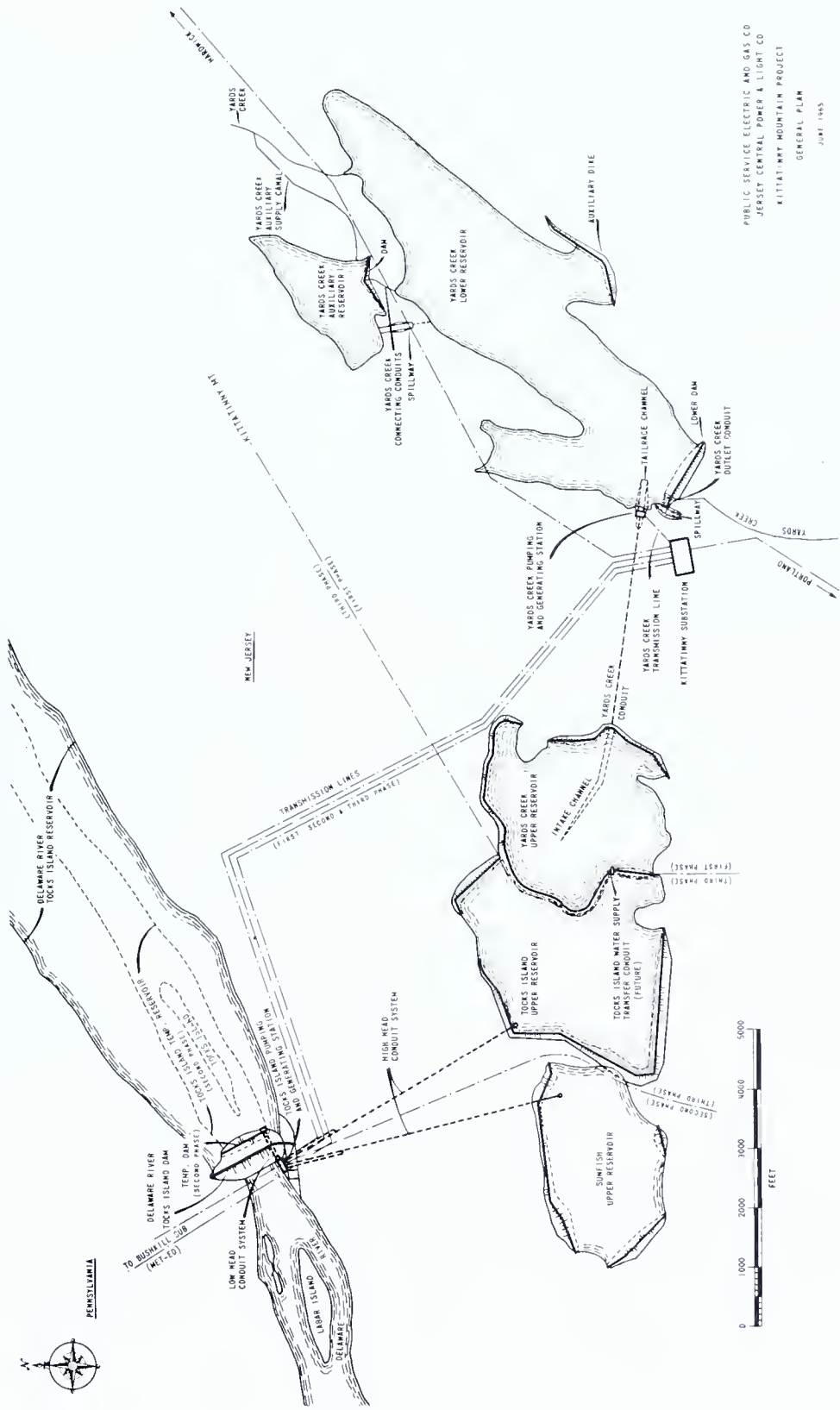
A National Recreation Area differs in an important way from a National Park as administered by the Department of the Interior. In a National Park, the prime object is preservation of the natural environment. Public use and access are important, but subordinated to this objective, and such activities as recreation and sightseeing are restricted within carefully-controlled patterns. In a National Recreation Area the goals are reversed. Preservation and conservation are extremely important and required by law, but the area is managed primarily to satisfy outdoor recreation needs of large numbers of people.

Clearly, DWGNRA can provide a wide range of opportunities: fishing, boating, swimming, hunting, camping, nature study, picnicking, research, and simply walking in the woods.

The impoundment made by the Tocks Island Dam some authorities believe, will probably become the most heavily fished lake on earth About half of the forty-five known species present today can be expected to provide sport fishing. 5/

5/ "Tocks Island National Recreation Area, A Proposal", National Park Service, 1965, p. 9.

Figure 2 Proposed Pumped Storage Program



Source: Delaware Basin Bulletin, Vol. 6, No. 1, September 1965.

In addition to the reservoir, there are some 50 lakes and ponds. The area contains 23 species of amphibians, 22 species of reptiles, 215 native species of birds, 48 varieties of mammals, and 1,100 plant species -- many quite rare. The varying topography and the extent of the territory which DWGNRA encompasses suits the project to many forms of recreational activities, not only during spring and summer, but throughout the year. 6/

Demand for such variety exists. DWGNRA will be the first inland National Recreation Area in the Northeast (Cape Cod, and the recently authorized Fire Island and Assateague projects are all ocean beaches). Attendance estimates anticipate that the project will be most intensively used Federal recreation facility in the United States.

On November 1, 1965, the National Park Service officially began preparation of the Master Plan and established a field office in Stroudsburg, Pennsylvania. completion of the plan is expected within one year. The Park Service has requested supplemental appropriations totaling \$3,000,000 for land acquisition.

During the Master Plan preparation, the States and surrounding communities will be able to confer

6/ It is important to note that in New Jersey DWGNRA abuts the 32,000 acres of Stokes State Forest and High Point Park, which together attracted over 600,000 visitors in 1964. The possibility of integrated management for the larger unit will undoubtedly be raised in the years to come, for the areas are continuous and will share both access highways and the visitor market. New Jersey is on record (Senate Committee Hearings on DWGNRA during 1964) as favoring some form of cooperative program.

with the Park Service on dovetailing plans for access roads and on programming land use development outside DWGNRA boundaries. The Park Service has shown great willingness to cooperate, and here is an excellent opportunity to mesh land and facilities planning both inside and outside the Recreation Area.

At this writing, the Park Service has a basic program for creation of ten different "destination areas" within DWGNRA. Careful consideration has gone into the kinds and capacity of activities for each. Details of the program will become final in the Master Plan. Because the greater part of the land area is in New Jersey (about two-thirds of the taking), this program calls for developing about 65 percent of DWGNRA's visitor capacity in that State. Figure 3 is a Park Service map of the Recreation Area, indicating the general locations of the following individual "destination areas".

In New Jersey

1. THE DELAWARE WATER GAP AREA From this famous landmark, the Recreation project takes its name. The site begins about a mile upstream of the dam and extends downstream about seven miles, partly in Pennsylvania as well. Some 6,200 acres are now owned by the State of New Jersey as the "Worthington Tract" and would be transferred to DWGNRA.

Development of the tract would be simple. This mountain area would be preserved and maintained in essentially its natural, wild character Six miles of river below the dam would provide trout and bass fishing, canoeing, picnicking, and family camping The Appalachian Trail traverses this area, following the crest of the Kittatinny Mountains . . . the area through which it passes would be preserved

and maintained in essentially its present condition. 7/

Estimated cost for the development as a whole would be \$1,195,000.8/ The Water Gap will attract about six percent of the DWGNRA annual visitations. It will also serve a "gateway" function for many thousands of visitors crossing the Delaware over I-80 and the toll bridges and may become a major information center for the development.

2. WALLPACK BEND This will be the largest destination area in the entire program, attracting almost 30 percent of the annual visits. It extends from about two miles above the dam to and including the east shore of the Flatbrook arm of the main impoundment.

Topography . . . is varied: the shorelands . . . are ideally suited for large scale beach developments and picnicking; the slope of the mountain offers excellent sites for primitive walk-in campground development. Boat launching and mooring facilities and marina developments could be located in coves and protected bays 9/

7/ National Park Service, Op. Cit., p. 23.

8/ These costs are in 1960 dollars and represent the original Park Service estimates. Unlike the land acquisition estimates, they have not been updated; and may turn out to be somewhat higher once the Master Plan is prepared.

9/ National Park Service, Op. Cit., p. 25.

Cost has been estimated at \$7,363,000.^{10/}

3. FLATBROOK The main emphasis in this tract would be on camping.

(It) embraces the greater portion of the peninsula formed by the Flatbrook arm and the main body of the lake. It would be relatively isolated . . . well suited for management as a semi-private area.^{11/}

In addition to family camp sites, two "organizational camps" would be available to organizations and groups. Cost has been estimated at about \$5,100,000, and proportion of annual DWGNRA attendance, about five percent.

4. NAMANOCK This is the second largest destination area and lies to the north of Flatbrook.

It is particularly adaptable to large scale intensive use and development in connection with day, weekend, and vacation activities (It) consists of a relatively level tract extending back from the shoreline for about a half-mile, then sloping steeply to the ridge top. The shoreline would afford ample opportunity for beach and marinas . . . with extensive picnicking

^{10/} These costs are in 1960 dollars and represent the original Park Service estimates. Unlike the land acquisition estimates, they have not been updated; and may turn out to be somewhat higher once the Master Plan is prepared.

^{11/} National Park Service, Op. Cit., p. 25.

areas nearby. Tent and trailer campground areas could be developed on the wooded slopes to the east. 12/

Cost is estimated at \$5,520,000. Namanock would draw about 25 percent of the visitation.

5. TOM QUICK This is the smallest destination area in the program and is limited to picnicking, boat-launching, swimming, and other water-oriented activities. It adjoins New Jersey Route 206 and would derive access directly from that highway. Costs of development would be about \$550,000, and Tom Quick would draw about three percent of the visitor-days.

In Pennsylvania

6. POXONO This is the largest area in Pennsylvania. It extends 13 miles along the shore to, and including, the bay which will be created at Bushkill.

Above and paralleling the reservoir is a plateau covered with active and abandoned farm plots, orchards, and farm wood lots that could provide easy-use and overnight camping sites . . . north of the dam-site is a vantage point offering an excellent view of the reservoir.

The Poxono area has the potential for a variety of inland recreational opportunities, including camping on small but attractive

12/ National Park Service, Op. Cit., p. 26.

Hidden Lake and quiet walks and nature study at the narrow hemlock-crowned point opposite Wallpack Bend. 13/

Cost is estimated at about \$3,500,000. Poxono would draw about 15 percent of the annual visitation.

7. EGYPT MILLS This extends upstream about four and a half miles from a point above Wallpack Bend.

The shoreline rises steeply with small but relatively level areas where the lateral streams enter the lake. Toms Creek, the largest . . . flows through a most attractive deep gorge with wooded slopes, rock out-crops, and waterfalls.

Level areas at the lateral streams are usable for small waterside facilities; upland areas are ideal for tent camping in the vicinity of the highland lakes. 14/

Two organization camps as well as family camp sites will be built. Costs are estimated at about \$3,040,000, and visitations at about five percent of the yearly DWGNRA total.

8. HORNBECK GORGE This would be a comparatively small area around the gorge itself. It would be geared toward day-use activities, with only a

13/ National Park Service, Op. Cit., p. 24.

14/ Ibid, p. 25.

few camp sites on a plateau above the gorge. Cost of preparation is estimated at about \$340,000. Hornbeck Gorge would handle only one percent of the park visitation.

9. DINGMAN'S GORGE This is a more extensive area, encompassing the Gorge, Dingman's Falls, and the village of Dingman's Ferry. Some 280 acres are now state-owned and would be transferred to the Park Service. Lake frontage is three miles and the tract extends inland for an equal distance -- the deepest penetration in Pennsylvania. Dingman's would be developed for water sports, for hiking and other day-use activities at an estimated cost of \$1,450,000. It would draw about 11 percent of the visitation load.

10. THE KNOB This is a relatively narrow area just south of Milford, extending for several miles, and including the face of a steep escarpment.

The entire area is well suited for day outing activities such as picnicking, boating, fishing, swimming, water sports.^{15/}

Costs are estimated at about \$460,000. The visitation level would be about three percent of the DWGNRA total.

This is but a brief description of the areas and their intended activities under the ambitious program of the National Park Service. A great effort will be made to develop unique attractions, to utilize the sites for winter sports as well as summer, and to turn DWGNRA into a true laboratory of nature study for schools and colleges in the region. While

^{15/} National Park Service, Op. Cit., p. 27.

conservation of natural beauty and protection of water resources have been among the main objectives of the integrated Tocks Island development, the Park Service intends the public to derive maximum year-round benefit from the recreation program in keeping with these other goals.

Yet another matter concerning the facilities awaits decision: The degree and kind of private concessions to be permitted within DWGNRA itself. Park Service policy will be to limit concessions -- partly because of the active private commercial development throughout the region.

Visitor services would be kept to the minimum necessary to provide the visitor with the type experience for which the area would be established. The National Park Service would not provide services that could be provided satisfactorily in the vicinity by private enterprise. 16/

While the Park Service must in the planning period decide the precise scope and character of allowable concessions, the policy of strict limitation is accepted as the basis for "outside-the-park" impact estimates discussed in subsequent chapters.

Scheduling

The project will be built and will be opened to the public in stages. Some of the destination

16/ National Park Service, Op. Cit., p. 20.

DELAWARE WATER GAP NATIONAL RECREATION AREA

PROPOSED SITE DEVELOPMENT PROGRAM



areas may be opened before others, although the exact sequence is not yet determined. The construction schedule will be part of the Park Service Master Plan. The entire Recreation Area should be built and available for public use by 1975.

LAND ACQUISITION, RELOCATION, LIFE TENURE, AND ADMINISTRATION

Responsibility for acquiring all lands associated with the Tocks Island Program rests with the Corps of Engineers. Insofar as the Recreation Area is concerned, the Corps will turn over the acquired property to the Secretary of Interior for Park Service administration. Procedures used in acquisition and relocation (of public as well as private land and facilities), will be according to long-established Federal regulations and Corps practice -- modified only by certain life-tenure provisions contained in the DWGNRA Act.

Land

About 72,000 acres have been authorized for Federal purchase. Boundaries will be as generally depicted on the official map authorized as part of the Act. They generally follow the ridge lines of uplands on either side of the river and/or (in New Jersey) existing local roads. At the request of the local communities, the DWGNRA Act also authorized the Secretary of Interior to omit from taking up to 1,000 acres in Sussex County and 300 near, adjacent, and contiguous to the Borough of Milford, that had been tentatively scheduled for the Park.

Private Land

The following information on present use applies to the 48,000 acres authorized by the DWGNRA Act of 1965. In this area are about 1,100 single family houses, of which only 375 are classified as year-round dwellings. The remainder are cottages or other seasonal dwellings. This is a lightly-settled area, and relatively few people will be displaced. 17/

In addition, there are some 19 commercial establishments (motels, restaurants, gas stations) seven summer camps operated by organizations or individuals, three churches and three golf courses. All told, there are 1,200 separate ownerships for about 4,000 separate parcels in the taking area. Of the 48,000 acres, approximately 30,000 are in New Jersey.

The 1965 Act authorized \$37,412,000 for the acquisition of the 48,000 acres. Already, however, there are signs that the final bill may be much higher. The National Park Service proposal for \$3,000,000 in supplementary appropriations to begin immediately on the land acquisition was of an emergency nature, for much of the money is earmarked to obtain parcels in the process of subdivision. Unless the Government can move quickly, nothing will be able to stop the subdivision and subsequent construction from taking place. Both speculation and construction are so extensive in this region, that the inflation of values may continue unchecked. In such an event the taxpayers will have to reimburse owners for their properties' current worth at the

17/ According to current Corps of Engineers estimates, in the taking area for the dam and reservoir there are an additional 1,200 residences (of which about 430 are year-round), about 20 motels or hotels, and about 60 other commercial uses along with a few churches, clubs, etc.

time of taking and can incur substantially larger costs. No Federal law can prevent development on the land authorized for taking.

Of course, the other side of the coin is that acquisition of land over a period of years as currently practiced in Corps projects allows property owners to retain their homes until actual development need arises and spreads whatever burden to the surrounding communities the loss of rateables might bring. Land values in the surroundings are rising so high, however, that this tax loss may be negligible. There is much in favor of an early acquisition program.

Acquisition for all land in the Tocks Island Program will take place according to the following procedure: The Corps will have an appraisal made of the property's fair market value and will make an offer based on this value to the owner. He can accept the offer, negotiate a counter proposal acceptable to the Corps, or at his own expense take the case to court.

As in all cases of eminent domain proceedings, the court will then determine the price to be paid and the damages, if any. The Corps does not have any responsibility to provide private property owners with substitute land or facilities. ^{18/} It does have responsibility to reimburse for the costs of relocation for both owners and tenants.

^{18/} As distinguished from the Government's liability under Urban Renewal, where displaced owners and tenants of both residential and business property must be assisted in finding new accommodations at "decent, safe, and sanitary" standards.

The people affected must, however, apply for reimbursement within one year after either acquisition or vacation of the property, whichever is later. Furthermore, they must submit itemized statements of expenses, losses, and damages, (including moving, temporary storage, title searches, appraisals made in purchasing other land). In no case may relocation payments exceed 25 percent of the fair market value of the acquired property.

Tenure

In the case of the Recreation Area, the authorization Act includes the following tenure arrangement: Such rights are available only to owners who have acquired interest in their property before January 1, 1965 and who intend only non-commercial use of it which, in the opinion of the Department of Interior and the Corps, will not interfere with development and use of the Reservoir or Recreation Area. An owner has the option to choose a usage right extending to either, 1) the death of the owner or his spouse, whichever occurs later, or 2) period of 25 years. Compensation to the owner is reduced by an amount equal to the value of the right retained. The only form of residential property which can actually qualify is a single family year-round dwelling on which construction was commenced before January 21, 1963 and served as the owner's permanent abode at time of acquisition by the Corps. In addition, no more than three acres of property surrounding the house can be retained for private use.

In practice, the number of life tenure agreements will probably not be great. Fewer than 400 year-round residences will be affected by the takings but not flooded out by the reservoir. Many of these will be on recreation sites, and others will lose

their access roads to the flooding. (The Park Service will probably not negotiate tenure agreements where it would have to bear the expense of constructing new access roads to individual houses.)

The actual number must rest, however, on the final Park Service Master Plan. This plan should also consider how and under whose responsibility public services (from water supply to schools), will be provided to the few residents who remain.

Townships

It is also important to note that the Recreation Area will take all of the land within two New Jersey townships: Pahaquarry in Warren County and Walpack in Sussex County. A question facing New Jersey authorities is whether these townships should remain as legal, incorporated entities, or whether they might be merged in some way with adjoining communities who could provide services to those few families who would remain under the life tenure provisions.

Two other New Jersey townships -- Sandyston and Montague in Sussex County will give over considerable land to the project, with only a small amount remaining in private hands. Here too, the questions of merger and consolidation will become relevant.

Public Facilities

When relocation of public facilities is deemed necessary, the Corps of Engineers is required to provide substitutes that serve in the same manner and to the same capacity as the original facilities before relocation. Facilities covered are roads, railroads, utilities, towns, and cemeteries.

The most extensive relocation will involve 27 miles of Route 209 in Pennsylvania. The Corps will rebuild it -- at its present two to three lane standard -- along an alignment not yet selected. ^{19/} Approximately \$5,000,000 has been budgeted for this purpose. Chapter VI contains comment on the adequacy of this relocation standard for Route 209 in the light of anticipated traffic flows.

Other facilities scheduled for relocation are the U. S. Route 6 bridge near Port Jervis to Tri-state, some minor secondary roads, a few transmission lines and three cemeteries. Total relocation costs for public facilities have been estimated as slightly over \$11,000,000. The narrow bridge at Dingman's Ferry will be inundated but will not be replaced. The Village of Bushkill will be inundated.

Were Bushkill -- with its 500 summer residents and complex of commercial activities -- an incorporated community, the Corps would be required to provide it with a full range of physical services comparable with its present facilities. The Community would obtain a townsite, and the Corps would install the roads and other services. Bushkill's residents have not yet decided to incorporate, however, and will be ineligible for such assistance.

^{19/} At present, however, the Pennsylvania Highway Department feels that future traffic on this highway warrants their upgrading the relocated section to four-lane standards.

Acquisition in New York

No land in New York State has been approved for inclusion in the Recreation Area. P.L. 89-158 instructs the Secretary of the Interior, however, to make a study of the feasibility and usefulness of including New York territory within the program. After such a study is made, any specific takings would become the subject of special legislation. Thus, in addition to the uncertainty over the extent of reservoir flow into New York, there is still a matter of recreation land to be decided. Any takings in New York would probably be in the Neversink Valley, where an eleventh "destination area" might be created.

A Note on Administration

The Park Service will administer the Recreation Area and the Corps of Engineers, the workings of the dam and reservoir. Insofar as water use and provision of water supply are concerned, the Delaware River Basin Commission will act as the coordinating and decision-making body. Problems of law enforcement within the Recreation Area will be handled by regular Park Service Rangers, trained and directed by the Federal authorities.

Other administrative arrangements are described in the following statements of the Park Service:

Management of fish and wildlife resources would be a cooperative endeavor with the three states involved. Management of the habitats would be the responsibility of the National Park Service; hunting and fishing, desirable and compatible with the mission of the Area, would be regulated by the separate states

The National Park Service would consult with local, county, State, and regional governmental agencies to encourage comprehensive land use planning for the region. The Corps of Engineers and the National Park Service would establish procedures for the coordination, and use, to assure consistent and effective administration

Planning, development, and operation of the area would be correlated to the programs and practices of park, forest, highway, and game agencies of the three States affected. 20/

20/ National Park Service, Op. Cit., pp. 20-24.

III. A CONTEXT FOR IMPACT

This study's main task is to assess the impact, both economic and physical, that the Delaware Water Gap National Recreation Area may have on the area which it adjoins. Five counties form the territory of concern: Pike and Monroe in Pennsylvania; Warren and Sussex in New Jersey; and Orange in New York.

Many major parks and reservoirs have been constructed in remote rural regions where land is plentiful and the local economies quite simple in character. In such a setting, a large recreational facility attracting millions of visitors can make substantial transformations in the economy. It can open an untapped area for investment and can provide -- both at the facility and through the attendant commercial services it engenders -- new sources of comparatively lucrative employment for the local populace. Indeed, many depressed areas of the United States, possessed with natural beauty but little else in the way of productive resources, are requesting establishment of Federal recreation developments for the purpose of improving their economic prospects.

Were DWGNRA located in a comparable setting, the task of assessing impact would be quite straightforward. The focus would be directly on the local employment and income structure. The development potential of the recreation facility could be readily determined; i.e. its ability to generate jobs and commercial services, and the quantity of labor and land which the surrounding communities must provide to capitalize on this potential could be estimated. The recreation area would be regarded as a unique "development tool" to initiate new growth processes in the region.

But DWGNRA will not be a remote facility. Its setting is a region of dynamic growth, where other, perhaps more powerful, forces of expansion are already acting on its surroundings and will -- if anything -- accelerate in future years. Here the task of assessing impact is much more complex, for the economic "environment" encompasses more intricate and contingent relationships, including substantial influences from outside the immediate vicinity.

DWGNRA and the five contiguous counties must be viewed within a broader context of developments from the New York and Philadelphia Metropolitan Regions. Metropolitan forces will influence the character of usage of the Recreation Area, its function, and its impact.

HIGHWAYS

By 1973, most of the five county area will be within one hour's driving time of New York City and little more than two hours from Philadelphia. Densely-settled portions of Megalopolis outside these central cities will be even closer to DWGNRA and its neighbors. This ease of access will come via links in the Interstate Highway system now under construction (see Figure 4). Certain State highway projects, programmed for completion by 1973 or shortly thereafter, will further improve access. This closely woven highway network will be the biggest single influence over the character of DWGNRA usage and the development in its hinterland.

Figure 4 shows DWGNRA in the middle of the partially-completed ring of expressways. At its south, extending from the George Washington Bridge through

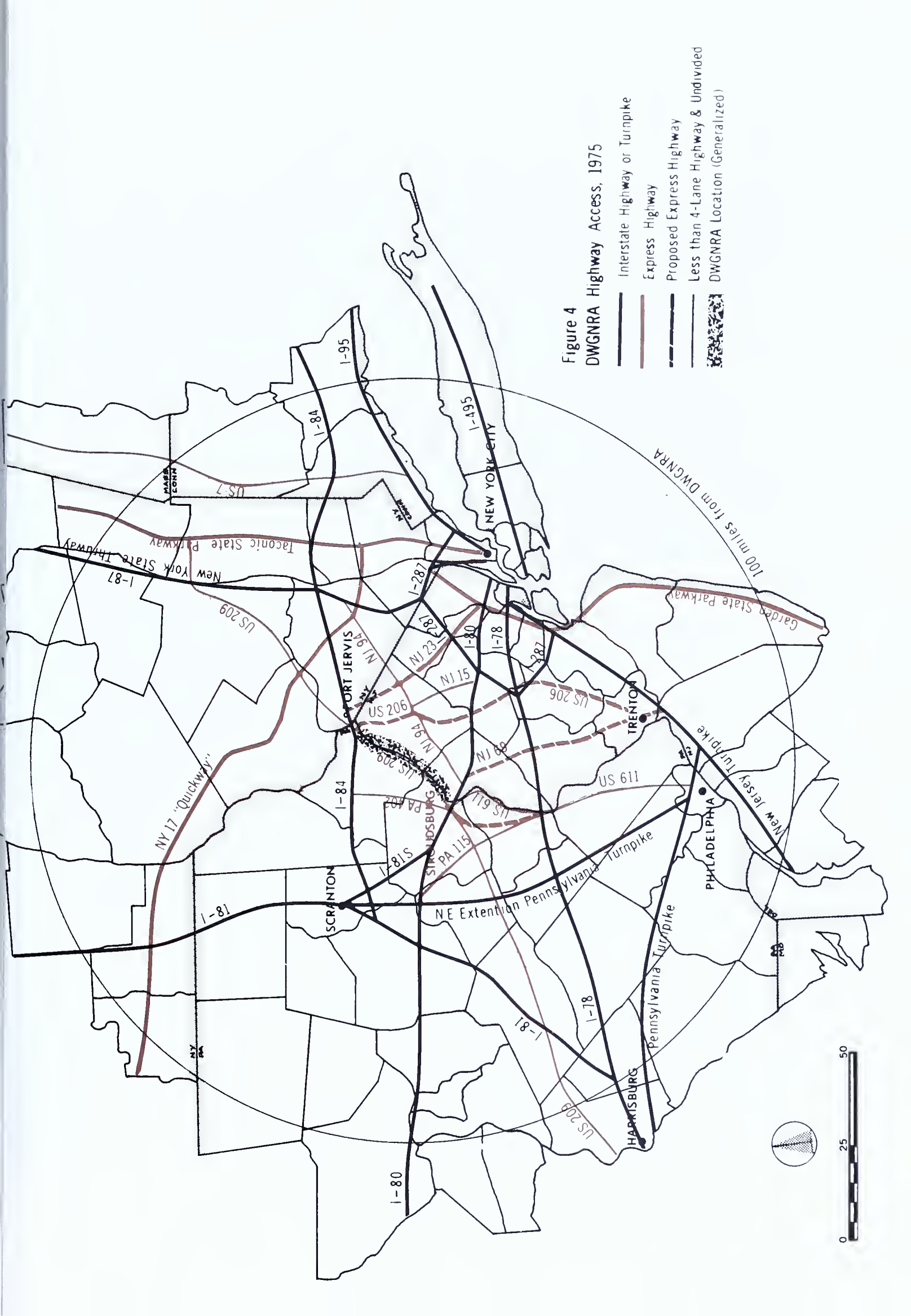


Figure 4

DWGNRA Highway Access, 1975

- Interstate Highway or Turnpike
- Express Highway
- Proposed Express Highway
- Less than 4-Lane Highway & Undivided
- DWGNRA Location (Generalized)

heavily populated suburbs of Metropolitan New Jersey I-80, that will continue westward across Pennsylvania to parallel the Pennsylvania Turnpike. To the north, I-84 comes down from New England, intersects with the Route 17 "Quickway" in Orange County, and then cuts through Port Jervis and Pike County to terminate at the Pennsylvania Turnpike's Northeast Extension near Scranton and Wilkes-Barre.

Thirty-five miles to the East, I-287, the outer circumferential of New York, will link the radials. About the same distance to the West is the already-operating Northeast Extension of the Pennsylvania Turnpike. Between the Extension and DWGNRA will be yet another North-South route, I-81S, connecting the region via I-81 with Binghamton and beyond.

Two highway developments in New Jersey are also of importance: The State intends to convert Route 23 between the Delaware River and Patterson and Routes 206 and 69 to Trenton into limited access or divided highways. Currently under study in Pennsylvania is the widening and limiting of access on a somewhat relocated Route 611. This would afford a direct trip to DWGNRA from Philadelphia.

Today, as in the past, much of the five county area is sufficiently difficult to reach that it remains outside many urbanizing influences of Megalopolis. In the future, this no longer will be the case.

METROPOLITAN INFLUENCE ON LAND DEMANDS

Suburban spread to Orange, Sussex, and Warren Counties is well under way. Orange (already included in Regional Plan's designation of Outer Ring counties),

Sussex and Warren Counties have shown substantial increases in population and dwelling unit construction. Most striking is Sussex, whose population increased 43.1 percent to just under 50,000 people between 1950 and 1960. This rate was much higher than the New York Metropolitan Region's increase of 14.3 percent and New Jersey's urban population of a rise of 28.4 percent. In Sussex County during the ten years, almost 8,000 new dwelling units were constructed (one-third of the 1960 total).

Orange County and Warren grew more slowly in population (20.7 and 16.3 percent respectively), but both rates of increase exceeded that of the Metropolitan Region.

All told, the three counties had a 1960 population totalling close to 300,000. Some 55,000 people had been added over the decade of whom 37,000 or two-thirds represented net civilian migration -- essentially a suburban movement. The total number of dwelling units built between 1950-60 for the three counties amounted to 28,000 or roughly one-quarter of their 1960 housing supply.

More and Faster

According to RPA projections, the outward movement of Metropolitan suburbs will accelerate if present land development trends continue.

The 6½ million (additional population by 1975) will about double the built-up area of the Region, urbanizing in the next twenty-five years as much land as we have in the last three hundred. All the land out to Riverhead, Long Island;

Danbury, Connecticut; Lake Hopatcong and Lakewood, New Jersey will be built up by 1985, according to present trends. 1/

Lake Hopatcong is on the eastern border of Sussex and Warren Counties. RPA buttresses its conclusion in another report with the comment that:

On the average, the journey to work for all employees will be longer . . . This is true partly because home prices are far lower at the periphery of development -- already fifty miles in some places -- than they are in the inner suburbs, partly because there are personal reasons for housing choices aside from cost and commuting. As leisure time increases, these other reasons assume greater importance compared to the costs and rigors of commuting. 2/

Along with the population and residential growth have come substantial increments of commercial activities to serve the population, and new industries, all of which have demanded land. The accelerated spread of these developments, and the employment and incomes they will generate will strongly affect the

1/ Regional Plan Association, "Spread City", New York, 1962, p. 3.

2/ Regional Plan Association, "News", November, 1964, no. 75, p. 4.

land use, economic base and public services of the same area in which the DWGNRA impact is to fall.

A History of Vacation Services

In Pennsylvania, the manifestations of metropolitan pressure are somewhat different. Neither Pike nor Monroe serves as a bedroom for either Metropolis. Even with highway extension, it may be many years before they perform suburban functions (although the dynamics of growth in this part of the country make the prospect not far-fetched). Nevertheless both counties have grown as the result of an interplay between their resources and certain metropolitan demands. The reason lies in their long-standing role as vacation-spots for New York and Philadelphia, a role which has taken a new twist as accessibility and metropolitan incomes have increased.

Pike and Monroe Counties are, with Wayne County to the North, the "Poconos". Along with the Catskills, this region has provided land-and-mountain resort services to both New York and Philadelphia for well over 150 years. Once reached primarily by train, and now chiefly by automobile, the area has boasted dozens of private lakes and excellent upland scenery. Although not close enough to the metro-centers for commuting, it has been within easy reach (two to four hours) as a summer vacation spot where a family could stay an extended period, the husband joining them on weekends. Proximity to the cities has made the Poconos a much-visited weekend recreation region throughout the year, particularly now that resort owners are attempting to emphasize winter sports. Popularity is at an all-time high, and the two counties had hotel rooms numbering about 10,000 in 1964. The importance of

recreation as an industry to Pike and Monroe Counties is discussed at length in the next chapter. Clearly, it was a major force in the region long before the conception of DWGNRA. The economic impact of the new Federal facility must be viewed in context of the existing highly developed private recreational complex.

Vacations in a New Style

But the important recent trend in the area is the growth of vacation houses, second homes for week-end and summer use, geared directly to the accessible New York and Philadelphia markets.

Between 1950 and 1960, Pike County had a small growth in year-round population, from 8,400 to 9,100. But the number of dwelling units rose by an even larger number, from 8,700 to 9,600; 700 permanent residents added compared with 900 housing units . . . and in 1960, there were more houses in Pike County than year-round residents.

Monroe, a much more populous county with an indigenous manufacturing base as well as a recreation industry, nevertheless experienced similar phenomena. Its population grew from 34,000 to about 40,000; 6,000 people or 17.2 percent. Dwelling units increased from 13,700 to 19,200; 5,500 units or 29 percent. Here the increase was practically one dwelling unit per each new permanent resident.

Since 1960, the rate of subdivision and lot sales has probably far exceeded both the pre-1960 rate and the actual volume of house construction. It is difficult to know precisely about the volume of house construction, since neither Pike nor Monroe requires building permits. But the number and variety

of subdivisions can be appreciated from the billboards along the area's roads and the advertisements in New York and Philadelphia Sunday papers. As of 1964, some 11,000 acres had been subdivided in Pike County, for a total of 17,500 lots. By December, 1965, an additional 2,000 lots had been recorded. Reports from Monroe County in 1965 indicate that it had about 120 subdivisions of which over 70 were in active development. In the first nine months of 1965, plats totalling 12,400 lots had been filed with the County Assessor. 3/

The area's many natural and man-made lakes are helping the boom (most of the subdivisions have access to a pond or lake), as is the almost total lack of land control and of building regulations which would otherwise regulate lot size, utilities, materials, and -- in the last analysis -- costs. 4/

3/ Chief reason for this high a number was the fact that Monroe County adopted subdivision regulations mid-way through the year, and developers filed before adoption to avoid controls on lot sizes and requirements for utilities.

4/ Although poor quality development has been a problem in the area (see Chapter VI), many substantial and well-serviced houses have been built indicating a firm investment commitment to the area on the part of owners and developers alike. Monroe County's adoption of subdivision regulations was an attempt to improve the general picture, but Pike County still is without such regulations and depends on developer interest.

Probably the most important influences on future second home construction within the Poconos will be the same forces which generate the demands for facilities such as DWGNRA: increased leisure, rising incomes among the large metropolitan market, and, again, the easy access of the highways. Many families in the higher income ranges will look for a second home in a pretty setting within an easy drive of the city.

In 1962, the ORRRC estimated the national rate of vacation home construction between 75,000 and 100,000 annually, and were optimistic about its acceleration. Financing problems, which retarded vacation house construction in the past years, are now being solved as lending institutions recognize this is not a transitory phenomenon.

In all probability, once the Interstate routes are completed, the actual construction rate in the Poconos on lots already subdivided and sold will rise quite rapidly.

Retirement Trends

Along with the vacation house itself has come another, less striking, but nonetheless potentially significant force for impact on the Poconos -- conversion of some dwellings to year-round retirement residences for owners from the city. In Pike County, 15 percent of the permanent population was over 65 in 1960. This compares with a statewide average of about 11 percent.

Many of the subdivisions are being promoted as eventual retirement centers. According to local officials, still other houses are being built by

people who will start using them as weekend and vacation retreats but intend to become full-time residents whenever they can alter their place of employment to be within commuting distance.

Vacation home construction has taken place in Sussex and Warren Counties as well -- but not to the degree that Pennsylvania evidences. This may be due partly to more stringent public controls over land development and partly to the fact that sections of the New Jersey counties are actually less accessible to New York City and Philadelphia than the Poconos. 5/

Some of the population growth in Sussex and Warren can be attributed to conversion of part-time residences around lakes such as Hopatcong and Mohawk. A similar process can well occur in the Poconos, particularly if the prospects for local industry and other forms of employment are enhanced.

If one chose a word that best describes the growth potential of this region as it becomes increasingly drawn into the orbit of metropolitan influence, that word might be "volatile".

DAY USE FOR DWGNRA

Proximity to population centers means that the main recreational usage of DWGNRA will be for day outings by residents of the New York and Philadelphia Metropolitan Regions.

5/ The new highway construction cited above will greatly increase the accessibility of undeveloped portions in these two counties.

While it may be somewhat surprising to consider so large a recreational facility as serving a primarily "local" market, it must be remembered that the service area in this case is developed and populated in similar super-scale proportions. The New York Regional Plan Association projects that population in its Region will grow from 16,100,000 in 1960 to 19,700,000 in 1975. ^{6/} The Penn-Jersey Transportation Study, projects population in the Philadelphia-Trenton Metropolitan Region rising from 4,000,000 in 1960 to 4,700,000 in 1975. ^{7/} Thus, between 1960 and 1975 when the project will be completely open to the public, population in the two main metropolitan areas which it is to serve, will have grown by 4,300,000 people.

By 1985, RPA estimates that New York will grow 22,600,000. Area wide estimates employed by the Park Service indicate that within a 100-mile radius of DWGNRA (including a large part of the two metropolitan regions), some 30,000,000 people now live and that by the year 2010, the number will be close to 50,000,000.

^{6/} Included in the New York Region are New York City, seven New York Counties (Dutchess, Nassau, Orange, Putnam, Rockland, Suffolk, and Westchester), nine New Jersey Counties (Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Passaic, Somerset, Union), and Fairfield County in Connecticut.

^{7/} The Philadelphia-Trenton region includes five Pennsylvania Counties or parts thereof (Delaware, Chester, Philadelphia, Montgomery, and Bucks), and four New Jersey Counties (Burlington, Camden, Gloucester, and Mercer).

Given the projected highway network, the potential user market for DWGNRA will encompass all of this population.

Marion Clawson discusses what this means in terms of demand for day-use outdoor recreation facilities in the New York Metropolitan Region.

There are many ramifications in estimating future demand for all-day area in the ... Region. In addition to the factors which will affect the Region the same as the nation--higher average incomes, more total leisure, and more travel--in this Region much depends on what happens to the incomes and leisure of the presently low income segments of the population. When the time arrives that a substantial proportion of these people own autos, and should transportation facilities permit their ready use of all-day recreation areas, then usage of such areas will boom. If the national trend in the demand for all-day areas will lead to an eleven-fold increase between 1955 and 1985... then it seems reasonable to expect the regional demand to rise by five to eight times in the same period and possibly more...a truly large scale increase in demand for county and state parks and other all-day recreation areas will surely take place--and the area of such facilities will be under pressure to expand to meet the demand. 8/

8/ Marion Clawson, "The Dynamics of Park Demand", RPA Bulletin, 1960, no. 94, pp. 33-4.

When the National Park Service made its initial proposal in 1960, they noted that the heavily urbanized Northeast United States had serious deficiencies in available outdoor recreation opportunities. The Park Service estimated that as of 1955 the net deficit of facilities within a 100-mile radius of the DWGNRA site amounted to 365,500 design spaces (i.e. facilities capable of accommodating that number of people at any one time). Projected forward to this year, 1965, the accumulated deficit was set at 750,000 spaces. According to the same sources, anticipated need over the next fifteen years is for yet another 800,000 spaces, bringing the total cumulative deficit to over a million and a half spaces.

Based on estimated population growth, additional recreation needs during the next half century could raise requirements for new outdoor facilities by another two and a half million spaces or more, bringing the need to over four million. These estimates were made with a view toward rising incomes, increased leisure time and wider automobile ownership. They represent numbers of people willing and able to drive the distance to DWGNRA for a day outing. 9/

With "local" needs of such magnitude there is little likelihood that the Delaware Water Gap National Recreation Area, planned for the use of 123,500 people at any one time, will have excess,

9/ Corps of Engineers, U. S. Army; "Delaware River Basin"; House Document, 87th Congress, 2d Session; August 16, 1962, Appendix W, vol. XI, p. 29.

unused capacity. It is clear that this capacity will be the major factor limiting facility use by what will be a virtually unlimited market. 10/

Of the 10,500,000 visitors estimated for DWGNRA annually, some 8,200,000 or 78 percent will be people who live within an easy drive and will most likely come for the day. The remaining visitors constitute a not inconsiderable number and indicate the expected wide attraction of the new park. Nonetheless DWGNRA will function primarily to meet day use needs.

Thus this assessment of impact gives primary attention to the activity and expenditure patterns of these day users.

METHOD OF PROJECTION

Two types of projection have been employed in this study: one based on turnover for facilities at times of peak usage plus a set of relationships between the peaks and usage at other times; the other, on participation rates of population in the DWGNRA service area.

10/ In commenting on the relative attractiveness of multi-purpose facilities in the Northeast, the Outdoor Recreation Resources Review Commission stated: "apparently a powerful determinant of the number of people who visit a park on weekends is the facilities offered ... For example, of two parks each equidistant from, say, New York City or Philadelphia, one is likely to have well over 10 times as many visitors if it has a large number of these facilities--particularly those associated with water-- than one that has very few".

The ratios applied in both cases grow out of a comparative analysis of earlier visitation estimates for the Recreation Area and empirical data available from analogous situations. In several places, however, underlying assumptions have been modified, particularly where they were significant for the impact study.

Table 1 shows all the estimates in juxtaposition. Each is conditional on completion of all DWGNRA facilities as planned. At the low end and at the high end of the annual visitation totals are figures from the National Park Service. Both are derived by means of the turnover method and both are based on a normal summer Sunday usage of 50 percent over design capacity of the Park. The chief difference between the estimates lies in the proportion of total weekly visits during summer which are expected to occur on days other than Sunday: 40 percent in the lower figure and 70 percent in the higher.

Just inside the high Park Service projection is one constructed by applying visitation-population ratios observed in Palisades Interstate Park to projected 1975 population in the DWGNRA service area. The Palisades Park experience represents a particularly helpful analogy for examining DWGNRA visitation possibilities. Palisades is a major regional recreation area (over 50,000 acres in size), which offers multi-purpose outdoor recreation facilities and is primarily oriented to day-outing use by the population of one of the two metropolises (New York) which DWGNRA will serve. In 1963, it had a total number of visitations close to 7,000,000.

Visitor-population ratios from Palisades Interstate Park records for recreation visitors suggest that an average ratio of 300 to 400 visitors per 1,000 population in their service area is an accurate

reflection of their annual attendance experience. 11/ Applying these ratios to the projected DWGNRA service area population produces an annual attendance for DWGNRA of 13,640,000 visitor days.

The next lower estimate, 10,700,000 annual visitor days is based on Outdoor Recreation Resources Review Commission sources. According to the detailed inventory compiled by ORRRC.

The total capacity at any one time of 180 recreation areas within 120 miles of New York City - Philadelphia axis, is about 375,000 persons. In 1960, 32,600,000 people visited these areas . . . 12/

These statistics indicate an average annual turnover of 86.7 on facility spaces. Such a rate of usage for DWGNRA's 123,500 planned spaces would result in annual visitation between 10,500,000 and 11,000,000. If this annual figure is broken down according to the National Park Service (high level), assumptions on seasonal and peak day distribution of the visitor-

11/ Madigan-Hyland, Inc. for the Palisades Interstate Park Commission, "Attendance Characteristics and Space Utilization", February, 1965, p. 60. A 1964 survey revealed the following visitor-population ratios: for counties contiguous with the Park -- 600 per 1,000; for the 25-50 mile zone -- 207 per 1,000; 50-100 mile zone -- 27 per 1,000 (but here only a few Long Island visitors were included in the survey).

12/ ORRRC Study Report 21, "The Future of Outdoor Recreation in Metropolitan Regions of the United States", 1962, vol. II, p. 2.

Source	Design Load	Normal Summer Sunday		Summer Saturday		14-Week Summer Season		Annual Average Visitors		Total Annual Attendance	
		Turnover	Visits	% of Weekly	Visits	% of Weekly	Visits	% of Annual	Recreation		Sightseers
National Park Service Corps of Engineers <u>1/</u> RRNA: Visitor-Population Ratio Method Projection <u>2/</u> RRNA: Turnover Method Projection Adaptation of ORRRC Annual Turnover <u>3/</u>	123,500	1.5	185,000	60	20,583	7	4,322,500	80	5,400,000	1,350,000	6,750,000
		1.13	139,200	29	72,000	15	6,720,000	80	8,400,000	2,100,000	10,500,000
		(1.17)	(144,500)	(29)	(57,800)	(12)	(6,930,000)	(80)	8,600,000	2,100,000	10,700,000
Application of Visitor-Population Ratios from Palisades Interstate Park Analogy <u>4/</u>									10,910,000	2,730,000	13,640,000
ORRRC-National Park Service <u>5/</u>		1.5	185,000	29	76,600	12	8,800,000	80	11,000,000	2,750,000	13,750,000

1/ Letter, L58 NER(CS), January 14, 1965, from Mr. Peter DeGelleke, Regional Chief, State Assistance, Northeast Region, National Park Service, U. S. Department of the Interior.

2/ The visitor-population ratios used for recreation visitors were as follows: Zone 1 (0-30 minutes' driving time to Park) - 1,500 per 1,000; Zone 2 (30-60 minutes) - 500 per 1,000; Zone 3 (60-90 minutes) - 300 per 1,000; Zone 4 (90-120 minutes) - 200 per 1,000; Zone 5 (120-150 minutes) - 170 per 1,000; and for the remainder of the service area within a 300-mile radius of DWGNRA 25-50 per 1,000. As in the other estimates, sightseers are expected to number approximately one-fourth the recreation visitors.

3/ ORRRC, Study Report 21, The Future of Outdoor Recreation in Metropolitan Regions of the United States, Volume II, cites 32,600,000 visitor days in 1960 at the facilities in the New York City-Philadelphia axis capable of accommodating 375,800 people at any one time. The relationship in terms of annual turnover is 86.7.

4/ Visitor-population ratios from Palisades Interstate Park records for recreation visitors were as follows:
Home Zone (counties contiguous with the Park) - 600 per 1,000; 25-50 mile Zone - 207 per 1,000; 50-100 mile Zone - 27 per 1,000 (but here only a few Long Island visitors were recorded in the sample). The Palisades Interstate Park Commission estimates that the number of off-season or otherwise non-revenue visitors to the Park was about equal to the number recorded in their 1964 survey. Thus, they suggest that an average ratio of 300 to 400 visitors per 1,000 population in their service area is an accurate reflection of their attendance experience.
Source: Madigan-Hyland, Inc., for the Palisades Interstate Park Commission, Attendance Characteristics and Space Utilization, February, 1965.

5/ Indices and assumptions inherent in this projection are outlined in the National Park Service Letter, Op. Cit.

load, the turnover rate for a normal summer Sunday would be found at 1.17.

This lower Sunday turnover, in fact, is not far off the levels experienced at the Palisades Interstate Park. Of the seven Palisades "destination areas", only one area, Bear Mountain, exceeded a turnover of 1.5 on its biggest day in 1964 (and this was probably due to the numbers of visitors coming to enjoy the restaurant there and leaving). Only two of the areas reached as high a level of turnover as 1.5 on their single busiest days. 13/ Three were very near the turnover produced by computations on the ORRRC material.

Robert R. Nathan Associates' estimates fit well within the "envelope" provided by all the foregoing projections. Our "visitor-population" method produces an annual visitation total of 9,685,000. Ratios used are shown in Table 2.

The visitor-population ratios developed for the RRNA projections are not, strictly speaking, demand functions. 14/ The ratios are from the outset adjusted to the anticipated capacity of the DWGNRA development.

13/ Madigan-Hyland, Op. Cit., p. 63.

14/ Of the sort outlined in Marion Clawson and Jack L. Knetsch's chapter on the structure of demand for outdoor recreation in their as yet unpublished study, "Outdoor Recreation: Economic and Social Aspects".

TABLE 2. DWGNRA VISITATION ESTIMATED BY
VISITOR-POPULATION RATIO METHOD

Zone	Distance From Park (in miles)	(in hrs. travel)	Visits Per 1000 Population(1975)	Annual Visitation
1	0-25	Under $\frac{1}{2}$	1500	412,500
2	25-50	$\frac{1}{2}$ - 1	500	951,500
3	50-75	1 - $1\frac{1}{2}$	300	1,391,500
4	75-100	$1\frac{1}{2}$ - 2	200	3,174,200
5	100-150	2 - $2\frac{1}{2}$	170	1,314,900
Up to 300 miles or 6 hours			25-50/1000	500,000
Total Recreation Visits				7,744,600
Sightseers (25% of Recreation Visits)				<u>1,940,000</u>
Total Attendance				9,684,600

In their elaborate analysis of outdoor recreation demands in the Delaware River Basin Service Area, the National Park Service and Corps of Engineers jointly estimated the magnitude of unsatisfied needs for people residing within a 100-mile radius of the DWGNRA project. 15/

15/ As presented in the Corps of Engineers "Delaware River Basin Report", House Document No. 522, August, 1962, vol. XI.

Although the Corps' study indicates a steady rise in visitation demand over the past World War II period, upward adjustment of the ratios has not been made here. Suffice it to say that the estimates represent a minimum, quite likely to be surpassed.

They indicated a net need by people willing to travel the distance to the Recreation Area for day-outing use, of facilities capable of accommodating 365,500 people at any one time in 1955.

Since the "instant" capacity of DWGNRA is to be 123,500, roughly one-third the estimated need, the Park Service Engineers' population participation ratios used to define over all need were divided by three. This step produced visitor-population ratios roughly in proportion with the facilities to be offered at DWGNRA. Then some refinements were made according to the distribution of population by zone as projected for 1975. These adjustments took account of swelling of population during the summer in the counties contiguous to DWGNRA (particularly Pike and Monroe), relative ease of access via specific highways, and the pull of facilities with National Recreation Area status on visitor interest from beyond the 100-mile ring.

The final RRNA estimate presented, which is selected as the basis for the estimates of impact that follow, is 10,500,000 visitor days. It is based on an estimated summer Sunday turnover of 1.13. (This is somewhat lower than ORRRC-based turnover and the difference may be attributed to the greater distance to be travelled by users. Most of them will come for the day and will stay for the day.)

Sunday, as a proportion of the weekly attendance "in season" is like that in the higher Park Service estimate, 29 percent. (Palisades figures for the highest attendance days support this assumed relationship.) Saturday attendance, however, is upped in relation to the rest of the week, from 12 percent to 15 percent. As in all the turnover-method projections, the 14-week summer season is set at 80 percent of the annual total and sightseers at one-fourth the number of recreation visitors.

This turnover estimate is a bit higher than the visitor-population ratio method. Since visitor ratios for the respective zones were derived from population and demand levels prevailing in 1955, the latter method very probably produces an under-estimation of park attendance.

On the whole, DWGNRA has small chance of getting less than 10,000,000 to 10,500,000 annual days of visitor attendance. It is entirely possible, moreover, that circumstances may increase the "off-peak" usage of the facilities even beyond what has been allowed in the above estimation process, thus swelling the yearly totals.

For example, major blocks of additional leisure time, intense use of the Park as an "outdoor laboratory" by schools and universities, widespread conversion of vacation homes in the region to year-round retirement communities, and greater emphasis on winter sports facilities within DWGNRA could all occur to produce greater utilization during off-peak periods.

MODE OF TRAVEL

The vast majority of DWGNRA visitors will come by private car. Even at the Palisades Interstate Park, several of whose facilities can be reached by public bus or boat up the Hudson from New York City, around 90 percent of the visits in 1964 were estimated to have been made by private automobile. Over 80 percent of the DWGNRA visitors will be coming from more than 50 miles away and will have access to the Interstate and State expressways serving the Delaware Basin.

Although public bus lines may (and probably should) serve the recreation area from metropolitan centers and neighboring communities, expected increases in rates of automobile ownership will sustain the dominance of automobile travel to the area.

This is not to say that variations in the pattern are impossible. Schools, churches, settlement houses, camps, and the like that seize the opportunity for group teaching and enjoyment which DWGNRA presents could turn an expected miniscule flow of buses into an important element affecting both the usage and impact of the Recreation Area. Indeed, the great opportunity that DWGNRA will offer for group activities, makes imaginative use of public and charter buses highly desirable.

As with so many other aspects of DWGNRA impact, however, the degree to which the expected patterns are changed will entirely depend on individual decisions in response to the facility's potential.

ORIGINS AND DESTINATIONS OF THE VISITORS

The counties which make up DWGNRA's service area are grouped into zones taking account of estimated travel time under relatively uncongested conditions over the existing and currently planned highway system. (Two and one half hours was set as the maximum trip for day-use of the Recreation Area, and corresponds with the designation of Zone 5.) Figure 5 shows the pattern of counties grouped into these zones.

Counties within the respective zones were further grouped into sectors, according to their highway orientation. Figure 4 shows the major highways which will be furnishing access to DWGNRA.

When annual attendance projections are arranged so as to indicate sector of origin, the major importance of the New York and Philadelphia Metropolitan Areas as sources of DWGNRA usership stand out clearly. The largest group of visitors, about 47 percent of the projected total, will be coming from the direction of New York City and Metropolitan New Jersey via routes Interstate 80, primarily, and New Jersey 23.

Next largest, and about equal in size, will be the groups from the Philadelphia sector and from the counties north and northeast of New York City. Comprising together almost one-quarter the expected total attendance, these visitors will approach DWGNRA mainly over the Northeast Extension of the Pennsylvania Turnpike or U. S. Route 611 and Interstate 80, and Interstate 84, respectively.

New Jersey, (including Trenton and the Shore Counties), is next in order of visitors contributed, with a little over 10 percent. The counties to the west and the north of the Park, together with those bordering on the Park itself, will contribute about 19 percent of the total annual visitation. Nevertheless, when sightseers are added to the recreation visitor category, these counties will be sending over a million visitor days' worth of traffic over Routes I-84 and I-81S, and local roads of the home counties. The 28-30 percent of this attendance, or almost 400,000 that will be arriving on summer Sundays is by no means negligible. Figure 6 summarizes the data on origin of DWGNRA visitors.

Once within the immediate vicinity of the Park, the distribution of the visits among the ten "destination areas" is directly related to the facilities which will be offered at each. Figure 7 shows the visitation apportioned among the areas in relation to their respective intended capacities.

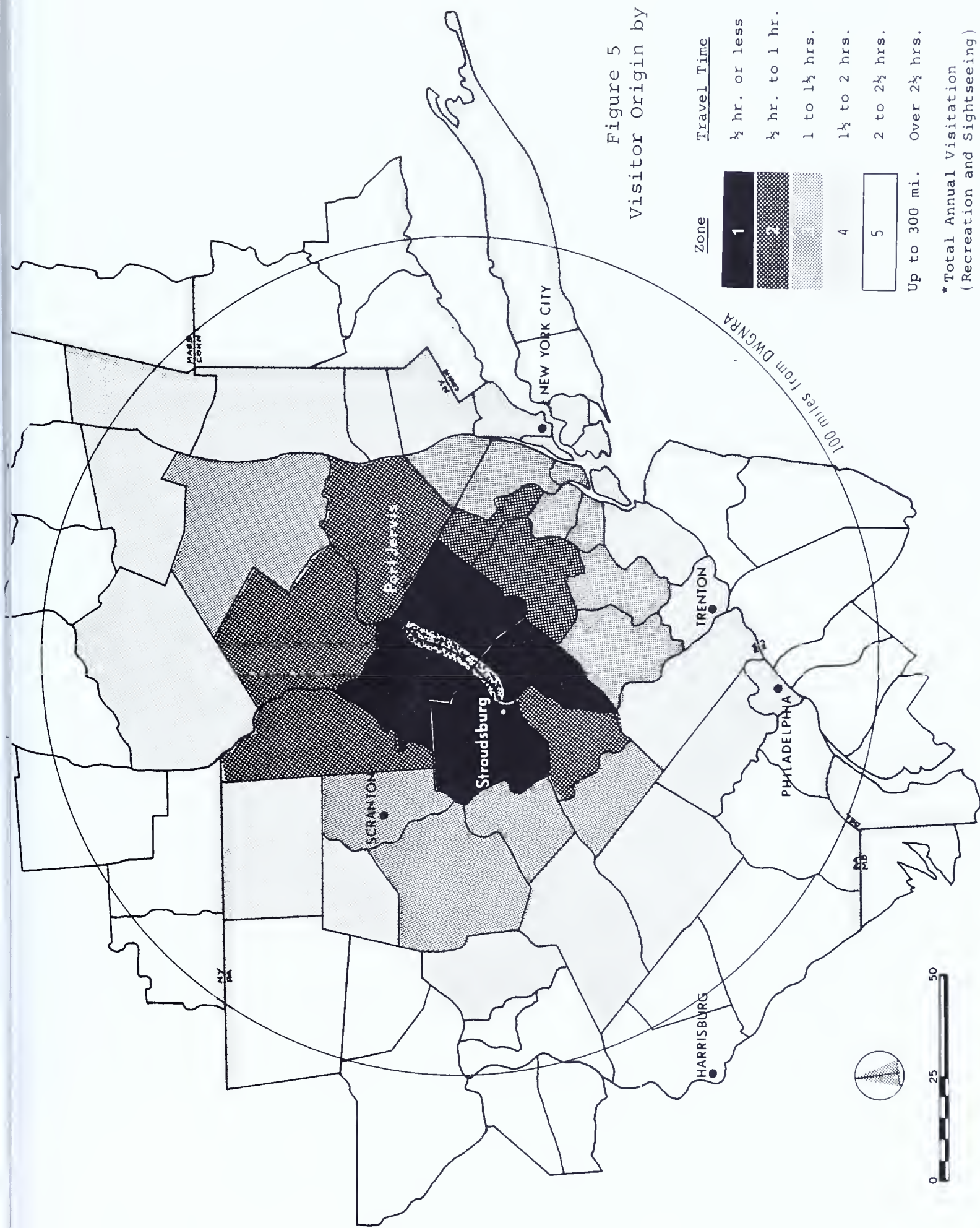
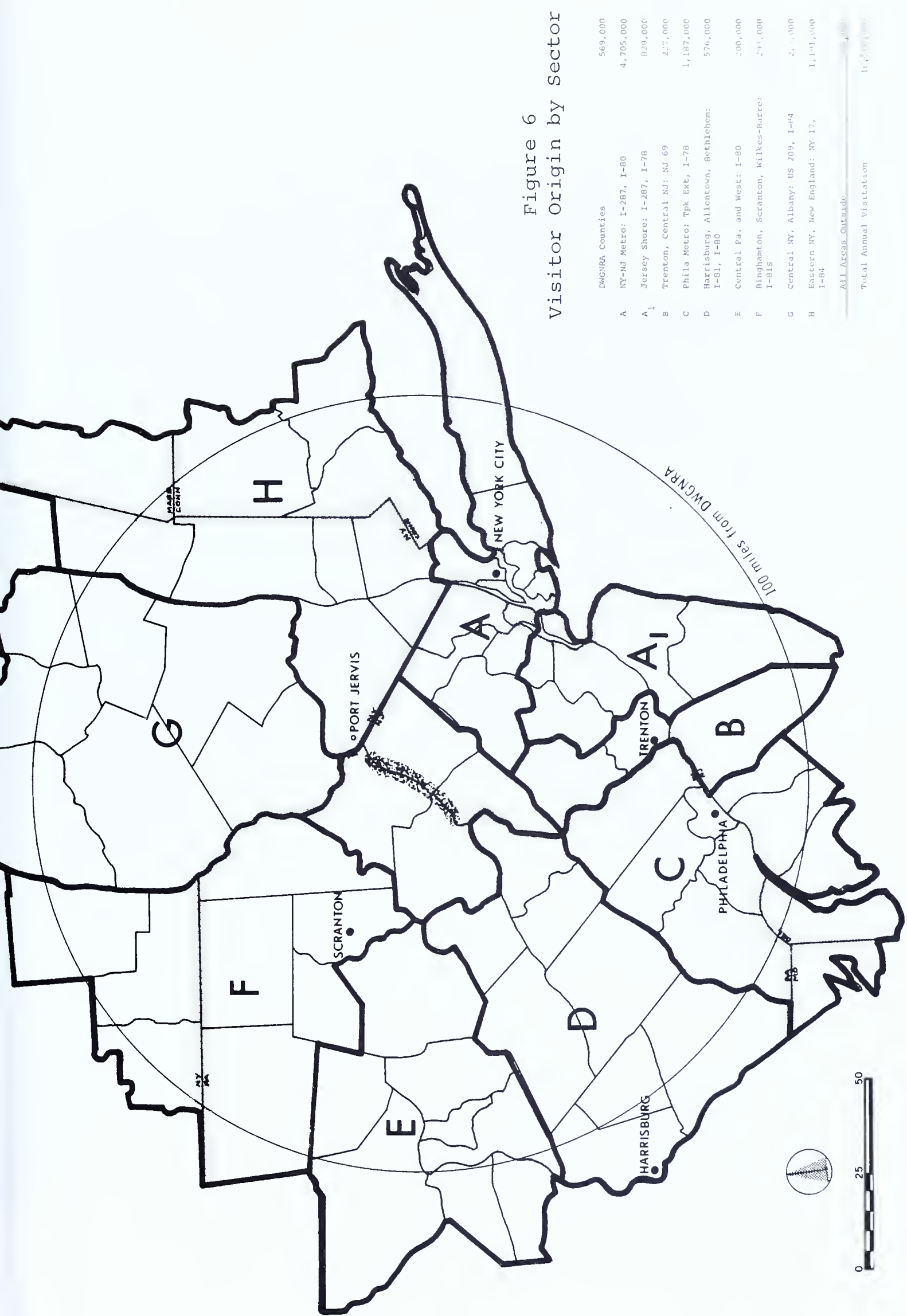
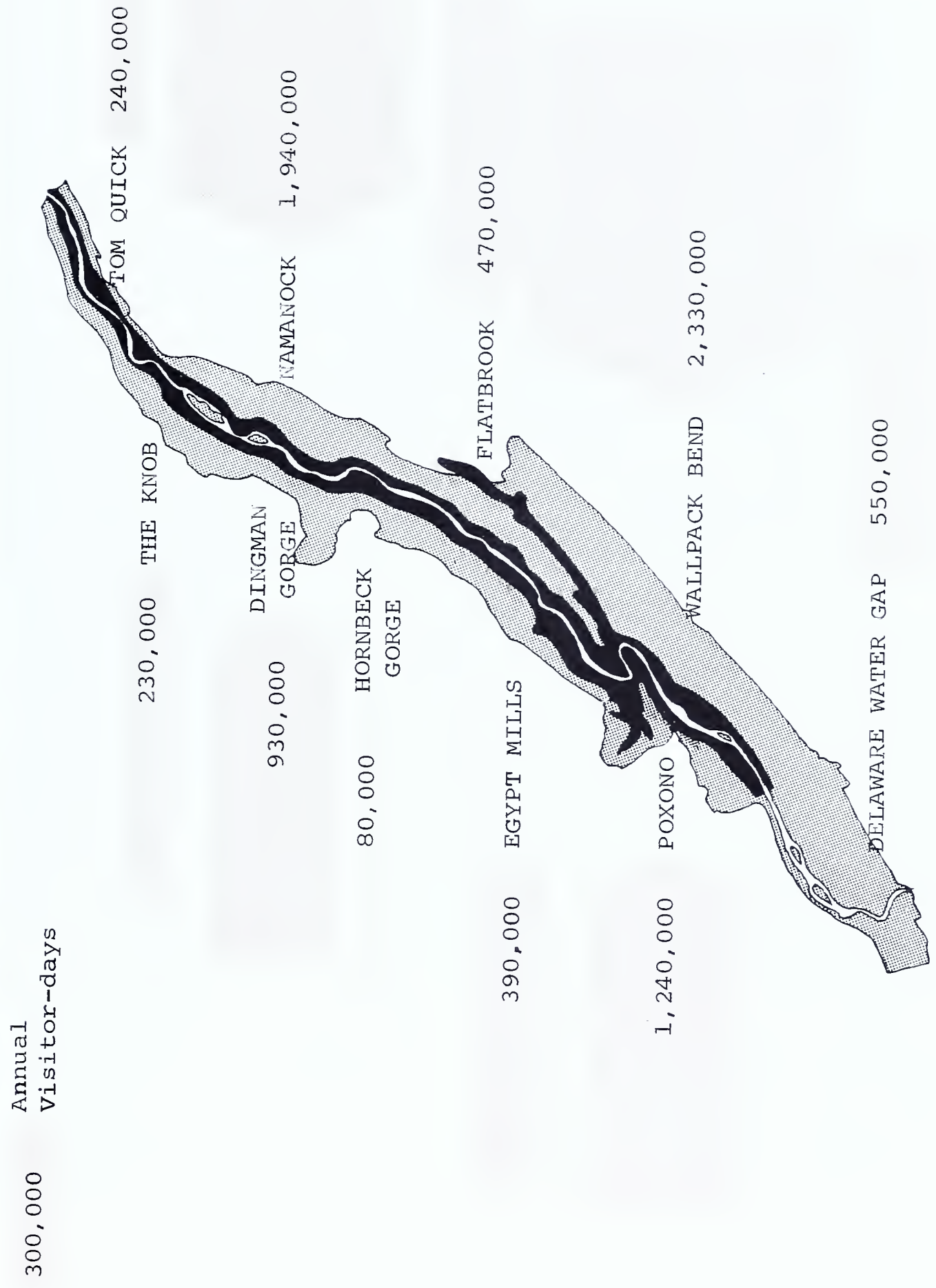


Figure 5
Visitor Origin by Zone

Zone	Travel Time	Annual Visitor-days*
1	½ hr. or less	570,000
2	½ hr. to 1 hr.	1,315,000
3	1 to 1½ hrs.	1,920,000
4	1½ to 2 hrs.	4,380,000
5	2 to 2½ hrs.	1,815,000
	Up to 300 mi.	500,000
* Total Annual Visitation (Recreation and Sightseeing)		10,500,000



Visitor Destinations



Almost 70 percent of the traffic coming into the DWGNRA area will be bound for the New Jersey side of the reservoir. Of this, all but 10 percent or so will be bound for Namanock and Walpack Bend. On the Pennsylvania side, almost 90 percent of the visitors will be going to the Poxono and Dingman Gorge areas.

Table 3 summarizes the attendance projections and constitutes the basis for further analysis of DWGNRA impacts.

A NOTE ON TIMING

The National Park Service proposes to make available for public use wherever possible lands and facilities as soon as they can be acquired and developed. The general objective is to acquire and develop for public use the lands below the dam included in the Delaware Water Gap "destination area" because their recreation values are not dependent on the construction of the reservoir. On a similar basis, it is planned to acquire and develop as funds become available, other land whose recreational enjoyment is not dependent on the reservoir. However, the availability of funds for these purposes cannot be anticipated and consequently a schedule of recreational use cannot be predicted. In any event, however, the total project is due to be opened in 1975. We would expect, in view of the estimated demand, that the visitation level would build up quite rapidly and reach its peak within a very short time.

While the first year or two may be a "shake-down" period for both visitors and Park Service alike to test the facilities, flows at the projected intensity should become established thereafter. Certainly

by 1980 the 10,500,000 figure will be reached and maintained.

SOCIO-ECONOMIC CHARACTERISTICS

Any effort to appraise the income levels and habits of the expected DWGNRA visitors is rebuffed by the sheer magnitude and diversity of the market from which the facility will draw. Nor are there relevant studies of actual situations which might be used as a guide. Two factors do stand out for consideration, however. One is the expected dominance of automobile use, which means that by far the majority of visitor families will be well above the "poverty" line.

ORRRC studies, moreover, continually point out that participation in outdoor recreation tends to increase with size of income. In view of the expected over all increases in per capita income within the New York and Philadelphia Metropolitan Areas, an even greater proportion of the population than today will be having high enough incomes to afford automobile ownership and, by implication, outdoor recreation at DWGNRA.

For the Philadelphia-Trenton Metropolitan Area, the Penn-Jersey Transportation Study predicts a growth of per capita income from about \$2,700 in 1959 to about \$4,500 in 1975 (both figures in 1959 dollars). 16/

16/ This is based on adjustment of National Planning Association income projections contained in the ORRRC reports (vol. 23, p. 422).

TABLE 3. PROJECTED VISITOR ATTENDANCE AT DWGNRA (DELAWARE WATER GAP NATIONAL RECREATION AREA) 1/
(In thousands of visitor-days)

	As % of Total Recreation Visitors	Annual Visits	Summer Season Visits 14 Weeks 2/	Average Sunday Visits Summer Season	Average Saturday Visits Summer Season	Average Weekday Visits Summer Season
TOTAL - ALL AREAS		10,500	8,400	177	90	67
Sightseeing Visitors 3/		2,100	1,680	35	18	13
Recreation Visitors 4/		8,400	6,720	141	72	53
Recreation Visitors:						
New Jersey Side	65	5,530	4,420	93	47	35
Water Gap 5/	6	550	440	9	5	4
Walpack Bend	28	2,330	1,870	39	20	15
Flatbrook	5	470	370	8	4	3
Nananock	23	1,940	1,550	33	16	12
Tom Quick	3	240	190	4	2	1
Pennsylvania Side	35	2,870	2,300	48	25	18
Poxono	15	1,240	990	21	11	8
Egypt Mills	5	390	310	6	3	2
Hornbeck Gorge	1	80	60	1	1	1
Dingman Gorge	11	930	750	16	8	6
The Knob	3	230	190	4	2	1

1/ On completion of all recreation facilities as planned.

2/ Calculations based on estimated 80 percent of annual visitor days occurring during the summer season. (Other calculations have been made assuming visitor days are distributed more evenly throughout the year -- with 60 percent in the 14-week peak season. While not shown here, the flattened peak situation is reflected in the lower range estimates of employment to be generated by DWGNRA visitor expenditures. Differential effects on space demands will be negligible.)

3/ Visitors to DWGNRA for purposes other than use of recreation facilities. According to Park Service estimates, they number approximately one to every four recreation facility users.

4/ Users of recreation facilities. Estimates are based on capacity usage, adjusted for turnover, of all planned public facilities.

5/ Partially in Pennsylvania as well.

The National Planning Association also makes projections for the New York Metropolitan Area which, if adjusted to be comparable with Penn-Jersey, would show a similar rise in magnitude and proportion. 17/

The type of commercial facilities outside the Park, and their quality, will probably be the most significant determinant of actual expenditure patterns in the impact area.

At the same time, however, that the "inevitable" pattern of visitations will be from mainly middle and higher income families, DWGNRA does offer an opportunity to serve the less privileged as well. This is an opportunity which can be mobilized through conscious private and public action.

The organization camp sites, the wide range of activities, the potential for carrying people long distances by bus from the city to the Park could be utilized by formal programs as means of enriching the lives of those otherwise unable to afford access to the open countryside.

CONCLUDING NOTE

The Delaware Water Gap National Recreation Area may play a far different role than the typical large outdoor recreation facility. It will not be

17/ "1975 Projections, Foreground of the Future",
Penn-Jersey Reports, vol. 2, p. 20.

the sole, and perhaps not even the major force working to produce change in the economy and land use pattern of its surroundings. Yet its importance to the surroundings, the region, and the nation may be greater simply because of its participation in this interplay of forces.

One cannot help noting the comparisons between the Recreation Area and New York's Central Park. Little more than a century ago, the City's Commissioners began to acquire land for a public park at the fringe of what was then the built-up area of Manhattan. Although they were not aware of the consequences at the time, the Commissioners were providing much more than a major recreation facility. Land around the Park was quickly developed, and the city grew on all sides and for such distance that Central Park became the one oasis in the dense urban center. Its value as green space, recreation area, and provider of prestige to abutting streets has been incomparable.

DWGNRA's scale is far grander than Central Park's, and the character or urbanization today is far different from New York a century ago. But the pressures for growth and land development in the Megalopolis of the East may make this conceptual comparison quite just.

IV. THE DWGNRA COUNTIES -- PRESENT AND FUTURE

It is only in the context of the Tocks Island Dam and DWGNRA that the five county area comprised of Pike and Monroe Counties in Pennsylvania, Sussex and Warren Counties in New Jersey, and the western tip of Orange County in New York can be regarded as a region. Of course, a number of interdependencies within the area have linked parts of one county to parts of another. But the single factor which "unites" them all today and brings to them a common prospect of shared opportunities and problems, is the great reservoir which will result from the damming of the Delaware a short distance below Tocks Island, and most particularly from the development of the shoreline of this reservoir.

When considering the changes which DWGNRA will bring to the five county area, the characteristics which differentiate each portion from its neighbors still appear more significant than their common concerns. While the forces which have shaped their economies in the past have emanated from the New York Metropolitan Region and, to a lesser extent, from Philadelphia, and while their future growth is largely predicated on trends foreseen for these city regions, the economic base of each reflects differences which stem from the physical environment and the transportation network which has developed over the past century.

Up to the time when proposals were made for establishment of a National Recreation Area the counties had turned their back upon the river. The bottom lands were used for farming and to a lesser extent for recreation, but the river has never served as a transportation artery for the region and the greatest part of

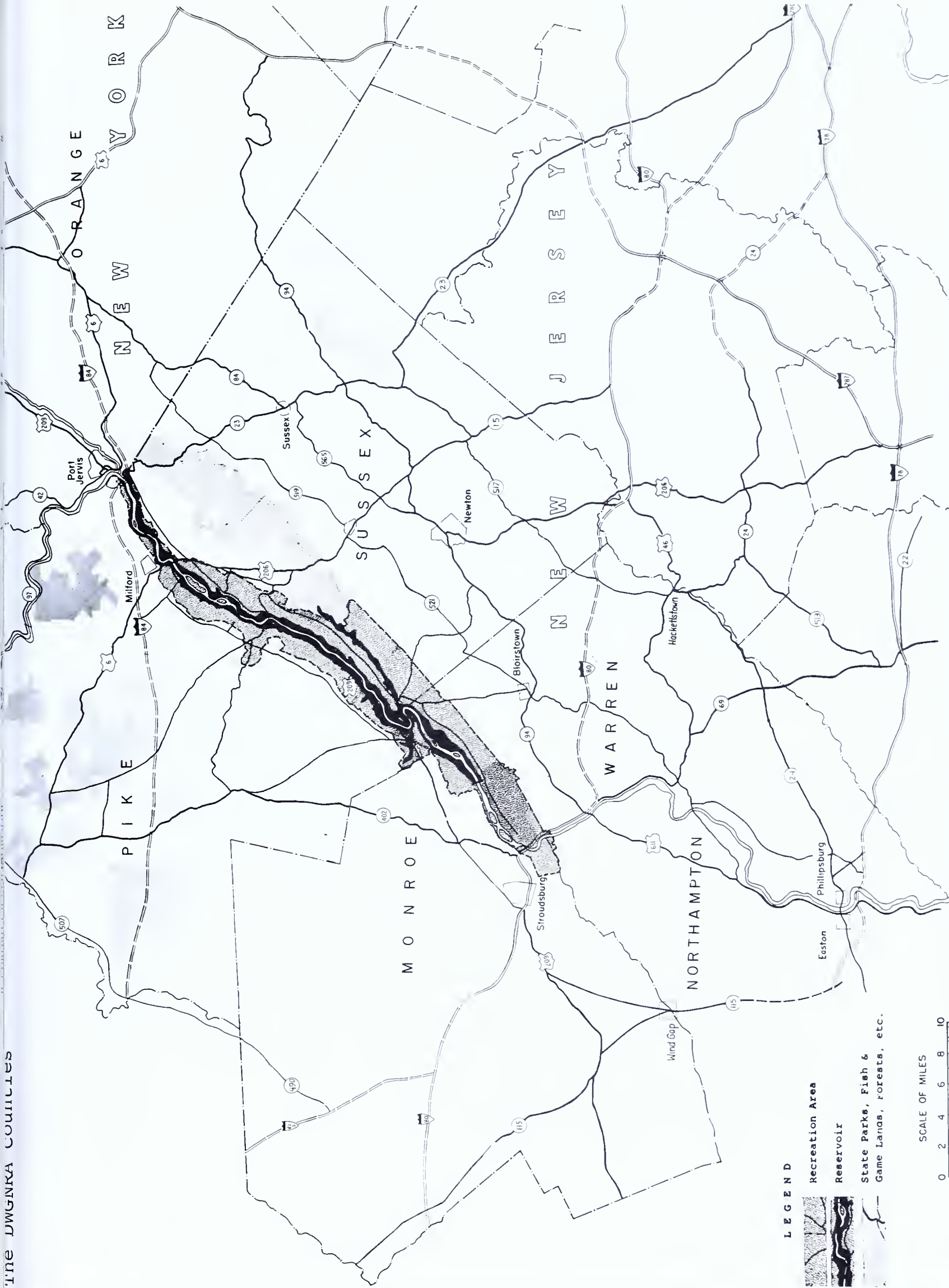
the commercial recreation development was centered on their hills and small lakes rather than on the river itself. Although DWGNRA will shift the focus of recreation-oriented economic activity somewhat, its effects on all parts of the region will not be uniform but will be conditioned by the existing economic base of each county and the other economic forces to which each will be responding. Thus, it is necessary to consider briefly the economy of each area before attempting to assess the significance of the impact from DWGNRA. 1/

PIKE AND MONROE COUNTIES

The Present

PHYSICAL FEATURES The Delaware River, as it flows between Pennsylvania and New Jersey above the Water Gap divides not only the states but two quite distinct topographic areas. In Pennsylvania the terrain is quite rugged with steep escarpments along a large part of the river shoreline, and broken ridges which rise to increasing heights in the western parts of both Pike and Monroe Counties. Known as the Poconos, these ridges are covered with second growth forests of little commercial value. There are many natural lakes and numerous man-made impoundments. Relatively little of the land area is suitable for farming, and mineral deposits are negligible. Only

1/ A number of detailed studies of the individual counties have recently been prepared and serve as background to this section. They are listed at the end of Chapter IV.



LEGEND

Recreation Area

Reservoir

State Parks, Fish &
Game Lands, Forests, etc.

SCALE OF MILES

0 2 4 6 8 10

in Monroe County at East Stroudsburg is there a rail link to the economic centers of New York and Philadelphia. As yet no completed express highways traverse the area. It is in this setting that the current development of the counties must be viewed.

For more than a century the rugged terrain with its many natural beauties has provided the basis for commercial recreation development which has brought a steady growth of population and employment.

POPULATION TRENDS At present recreation constitutes the principal economic base of Pike County and accounts for perhaps half of Monroe County's economic activity. At the same time, the relative inaccessibility of the area, as well as the terrain has limited the development of manufacturing to the Stroudsburgs and the neighboring borough of Delaware Water Gap, which, with the adjacent townships, form an urban complex containing more than one half of Monroe's population.

More remote from the great metropolises, and lacking a direct rail link with them, Pike County has grown less rapidly and has remained without any great population concentrations.

There has been railroad service to the South and East from Port Jervis, New York across the river from Matamoras and to this probably can be attributed a marked concentration of population in the boroughs of Milford and Matamoras, and their surrounding areas. The latter now serves as a bedroom community for Port Jervis and the former, once a resort town, as a retirement community and tourist center of exceptional charm. By 1960 this portion of the county contained more than half of its total population, as contrasted with about 40 percent in 1950. The following tables

show the relative magnitudes of population in the two counties and the changes which have occurred in the 1950-1960 decade.

TABLE 4a. POPULATION-COUNTY TOTALS

County	Population		Percent Change 1950 - 1960
	1950	1960	
Monroe	33,773	39,567	+ 17.2
Pike	8,425	9,158	+ 8.7

Source: U. S. Census of Population, 1960

Although the total population of Monroe County grew more rapidly, its "urban complex" remained a fixed proportion of the total, while that of Pike increased sharply, growing at about four times the rate of the county's population.

TABLE 4b. URBANIZED POPULATION

Area	1950 Popula- tion	Percent of County Total	1960 Popula- tion	Percent of County Total
Monroe County				
Urban Complex <u>2/</u>	18,392	54.4	21,372	54.1
Pike County				
Urban Complex <u>3/</u>	3,513	41.7	4,774	52.1

Source: U. S. Census of Population

2/ Includes Boroughs of Stroudsburg, East Stroudsburg and Delaware Water Gap; also Stroud and Smithfield Townships.

3/ Includes Boroughs of Matamoras and Milford; also Milford and Westfall Townships.

The population of both counties is predominantly white and native born. Their age distributions are relatively heavily weighted in the older age groups.

TABLE 4c. PERCENTAGE OF POPULATION
65 YEARS AND OVER

Area	1950	1960
Pike	13.4	15.0
Monroe	10.4	11.0
Pennsylvania	8.4	10.0
United States	8.1	9.2

Source: U. S. Census of Population

The high proportion of elderly persons in the Pike County population is an indication of the extent to which it is becoming a place of retirement. An examination of labor force and income data bears out this conclusion.

LABOR FORCE The two county area had approximately 36,000 persons 14 years of age and over in 1960, of whom 19,600 were in the labor force at the time of the census. Table 5 shows that while the labor force participation rates of both counties lagged behind those of the State and Nation, in both 1950 and 1960, the changes in Monroe County closely paralleled those in the rest of the country. However, in Pike County, while the male participation rate dropped even more sharply than in Monroe, the female

TABLE 5. LABOR FORCE PARTICIPATION RATE, 1950 AND 1960

Area	Total		Male		Female		Participation Rate		
	Participation		Participation		Participation		Males 65 and Over		
	Rate		Rate		Rate		and Over	1950	1960
	1950	1960	1950	1960	1950	1960	1950	1960	1960
United States	58.3	58.3	84.4	81.2	33.1	36.7	45.8	33.1	9.7 10.8
Monroe County	55.6	55.4	79.0	76.4	32.4	35.7	41.3	31.7	10.2 11.4
Pike County	50.4	50.1	78.1	73.9	22.6	28.0	38.2	26.6	7.7 7.7

Source: U. S. Census of Population

participation rate for those 65 and over remained the same in 1960 as in 1950. This fact, taken in conjunction with the extremely high proportion of older people in the Pike County population, suggests that Pike County is becoming a place of residence for retired couples who are not augmenting the labor force.

INCOME Median family income in both counties was low, relative both to that of the five county DWGNRA area and to the United States as a whole. In 1959, the median family income for the region (weighted) and the Nation was \$5,600 as compared to medians of \$5,093 and \$4,872 for Monroe County and Pike County respectively.

Smaller proportions of the families in both counties realized high incomes than in the State or Nation as a whole; and larger proportions realized low incomes than in the State. Pike County's proportion of families with low incomes was higher than the Nation's, and Monroe's about equal.

TABLE 6. INCOME DISTRIBUTION, 1960

Area	Percent of Families With Income Less Than \$3,000	Percent of Families With Incomes \$10,000 or Over
Monroe	20.3	9.7
Pike	24.1	8.0
Pennsylvania	16.8	13.9
United States	21.4	15.1

Source: Pennsylvania Bureau of Statistics

Among the factors that account for the lag in income levels in the two counties, the pattern of highly seasonal employment and the predominance of low wage industries are of great importance. Further, the magnitude of the retired population in Pike County is reflected in the high proportion of personal income which comes from transfer payments -- 14.9 percent, as compared with 8.8 percent in Monroe and 8.3 percent for the State as a whole. 4/

EMPLOYMENT The distribution of employment by major industry groups provides a good indicator of the relative importance of the various economic sectors in the economy of the area. Table 7, which summarizes the employment of the residents of the counties at the time of the decennial census in April, 1960, is useful as a benchmark but fails to provide any indication of the magnitude of trade and service employment in the summer months which is a salient feature of their economies.

In discussing the significant forms of economic activity in the Pocono Counties, it is necessary to emphasize the location as well as the magnitude of activities. For Monroe County, manufacturing appears to be the dominant activity with employment of about 4,600 -- a fairly constant figure for the past four years. No other single industrial group provides so great and constant a source of employment. But manufacturing is confined largely to the boroughs of Stroudsburg, East Stroudsburg, and Delaware Water Gap. According to the most recent Industrial Directory

4/ Pennsylvania Bureau of Statistics

of the Monroe Chamber of Commerce, the balance of the manufacturing activity is rather widely dispersed, most of it consisting of apparel plants which appear to be offshoots of the apparel industry in the Stroudsburgs. This is particularly true of the plants in the southern part of the county.

TABLE 7. DISTRIBUTION OF EMPLOYMENT
MONROE AND PIKE COUNTIES

Industry Group	Monroe		Pike	
	Employ- ment	% of Total	Employ- ment	% of Total
TOTAL	15,029	100.0	3,169	100.0
Agriculture	475	3.2	238	7.5
Mining	28	0.2	---	---
Construction	1,236	8.2	414	13.1
Manufacturing	4,654	31.0	603	19.0
Transportation	792	5.3	306	9.7
Wholesale and Retail Trade	2,490	16.6	486	15.3
Fin., Ins., and Real Estate	291	1.9	94	3.0
Services	3,512	23.4	697	22.0
Public Adminis- tration	783	5.2	150	4.7
All Other	768	5.1	181	5.7

Source: U. S. Census of Population, April, 1960

Manufacturing employment in Monroe County is nearly equally divided between durable and non-durable goods, the latter accounting for about 54 percent of

the total. According to the Pennsylvania State Employment Service, in August, 1964 fabricated metals production and apparel (chiefly ladies' blouses) were the two largest sources of employment with 900 employees each. Next in importance was printing and publishing with employment of 700. The remaining manufacturing employment was widely diversified and it is apparent that the county is dependent neither on a single industry nor a single company for the support of its manufacturing base.

Second only to manufacturing in significance for Monroe County are the service activities with annual average employment in 1963 of 4,100. These activities are much more widely dispersed throughout the area, and employment tends to fluctuate widely within the year. In February of 1963, employment in services was estimated at 2,600 as compared with a peak of 6,800 in August. The same characteristics are found in wholesale and retail trade employment, which averaged 2,400 in 1963 with a low in February of 1,800 and a high in August of 3,400. Both activities are linked closely to the great tourist industry of the Poconos, and the fluctuation between February and August may be taken as a fair measure of the impact of tourism and recreation upon the economy. A further measure of the importance of recreation-based industry in the county is the fluctuation in the number of self-employed, unpaid family and domestic workers which rose in 1963 from 2,000 in February to 2,600 in August. This increase reflects the numerous small enterprises for housing, feeding, and otherwise serving the thousands of summer visitors which are an important element in the economy of the county.

Trends in employment since 1960 appear to indicate that the most dynamic element in the economy of the area is the tourist-oriented trade and service sectors. Table 8 which gives changes in employment between 1960 and 1963, shows that while average annual

employment has grown 10.4 percent, the increase has come largely as a result of the 17.6 percent rise in seasonal employment.

TABLE 8. EMPLOYMENT IN STROUDSBURG LABOR
MARKET AREA
(Monroe County)

Period	Employment (Estimated)		Increase 1960-1963	
	1960	1963	Number	Percent
Annual Average Employment •	17,300	19,300	1,800	10.4
January - February	15,500	16,400	900	5.8
July - August	19,900	23,400	3,500	17.6

Source: Pennsylvania State Employment Service

In Pike County, there is virtually no manufacturing activity. Of the 603 persons listed in the 1960 census as employed in manufacturing, no more than 100 were employed by industries located in the county. Most of the balance were employed in Port Jervis, New York, or commuted to jobs in New Jersey. In fact, 45 percent of the county's 3,169 persons worked outside the county of residence.

There are no comparable seasonal data on employment in Pike County since it is a small part of the larger Honesdale-Matamoras Labor Market Area. Further, the census data, having been collected in early April, do not accurately reflect the importance

of trade and service in the employment pattern of the county. It is evident that even before the tourist season was well underway, service employment was the greatest single factor and that employment in trade nearly equalled that in manufacturing.

The dispersion of trade and service activity throughout the county is less broad than in Monroe and a great deal of it centers in Milford and Matamoras and the neighboring townships. The pattern of seasonal fluctuations in employment is similar to that of Monroe, occurring largely in trade and service activities.

THE RECREATION INDUSTRY

Employment is not an entirely adequate measure of the importance to the counties of recreation-oriented economic activity. The vacation industry has two aspects: 1) The entertainment of short-time visitors in resorts, motels, and summer camps with a resulting development of shops, restaurants, entertainments, and attractions, and 2) Second homes for occupancy primarily during the summer season. The first type of activity has important implications for the magnitude of seasonal employment; the second most immediately for the value of land but later for commercial development and year-round population growth.

The magnitude of resort-type activity is great and there is evidence that it is growing. A study prepared by the Federal Reserve Bank of Philadelphia in 1958 indicated that in Monroe and Pike Counties combined, there was almost \$40,000,000 of vacation spending in 1956, equivalent of over \$800 for each permanent resident of the two counties.

The recreation industry of the Poconos has many facets. There are the summer camps for adults as well as children, hotels, motels, and lodging

houses ranging from the very large self-contained resorts with golf courses and riding stables to the "Mom and Pop" establishment with less than ten rooms, and most important in numbers, the dwelling units used only part of the year which, in 1960, numbered over 12,000.

Estimates of the summer population of the area vary widely. From what is known of the capacity of the various types of facilities it appears that there are an additional 100,000 people enjoying the amenities of the area or working in the vacation establishments for most of the summer season. This increment is more than twice the size of the permanent population.

Apart from the facilities which provide lodging, and/or food, and entertainment the area contains an array of attractions for the vacationer and tourist. Gift shops and roadside eating places are numerous and adequate, though rarely of outstanding quality. There are animal farms for the children and summer theatre for adults. In several spots, the work of local or visiting painters and potters is for sale, sometimes at the roadside which adds color to the landscape.

Unfortunately, there are no very comprehensive or satisfactory measures of the volume or significance of recreation-based activity. But apart from the increases in seasonal employment, the informed judgment of individuals closely associated with various aspects of the vacation industry provide valuable insights.

Camps

With respect to organized camps for children, the State requires registration with the Department of

Health, which annually prepares a directory by county. These show, for 1961 and 1964, the following: Between 1961 and 1964, the number of camps in Monroe County increased from 49 to 55, and those in Pike County from 28 to 35.

In the judgment of one camp operator, there were about 8,700 children campers, 250 adults, and camp staff and/or employees of 2,700 in Monroe County in 1960. There is no comparable information for Pike.

The value of these camps to the economy of the counties is difficult to assess. Many of them belong to public or charitable agencies and their land is not on the tax rolls. They traditionally recruit their staffs from outside the area and these are likely to be very low paid apart from their subsistence. To the extent that the campers are permitted to make local purchases, they augment retail sales, but this is commonly highly restricted. Some supplies are purchased locally but for the larger establishments it is likely that many are trucked from New York or Philadelphia.

The greatest benefit is likely to arise from the fact that most parents of campers visit them during the summer season. This provides a very reliable market for the commercial tourist establishments in the area -- particularly on weekends. There is, nevertheless, a considerable feeling in both counties that the tax-free status of many camps works a hardship on the local taxpayers.

Resorts

For summer vacationers in the Poconos, and even for weekend visitors, the trend has been away from the large, self-contained resort. There have

been no new resort complexes constructed since 1955, nor is there any immediate prospect of further construction of this type. The following tabulations provided by the Pocono Mountain Vacation Bureau give its estimates of the changes in visitor accommodations over the past ten years. It was impossible to provide independent estimates for Pike County but the trends in both Pike and Wayne can be assumed to be somewhat similar. The growth in the number of establishments and rooms is substantial as is the estimated summer occupancy rate.

TABLE 9a. HOTELS, MOTELS, AND
OTHER LODGING PLACES

Year	Estimated Summer Occupancy of Establishments			
	Monroe County		Pike and Wayne Counties	
	Number	Rate	Number	Rate
1964	411	91.0%	156	90.0%
1960	369	87.0%	122	85.0%
1955	335	88.5%	98	70.0%

	Estimated Summer Occupancy of Rooms	
	Monroe County	Pike and Wayne Counties
1964	8,190	2,340
1960	7,289	1,951
1955	6,010	1,208

Although the majority of resort establishments are small, there seems to be a trend toward larger facilities. (See Table 9b.) Consistent with this development is the growth in number of rooms noted above, which was higher than growth in number of establishments. These trends are probably closely paralleled by developments in Pike.

TABLE 9b. SIZE DISTRIBUTION OF TOURIST
ESTABLISHMENTS - MONROE COUNTY

Size Class	1955		1964	
	Number	% of Total	Number	% of Total
Ten Rooms or Less	191	57.0	106	25.7
11-25 Rooms	101	30.1	175	42.5
26-50 Rooms	21	6.2	68	16.5
50-100 Rooms	17	5.0	47	11.4
Over 100 Rooms	5	1.5	15	3.6

The area's recreation activity is primarily summer-oriented. In 1964, 73.2 percent of the establishments in Monroe were operated only in the summer. However, year-round operation seems to be growing in importance. In fact, almost 70 percent of the growth in number of establishments in Monroe in the 1955-64 period occurred in year-round establishments. The comparisons below of growth in summer and year-round establishments give further evidence of this trend. Again, we may assume the same to be true for Pike County.

The growing popularity of skiing is a prime factor in winter operations. The ski facility at Camelback in Monroe County proved so successful in its first year of operation that a major expansion was under way in the summer of 1964.

TABLE 9c. PERCENTAGE GROWTH IN MONROE COUNTY
TOURIST ESTABLISHMENTS, 1955-1964

	Year-Round	Summer Only
Number of Establishments	89.7%	8.7%
Number of Rooms	113.7%	33.4%

Liquor tax receipts provide further indication of increased vacation patronage. Between 1950 and 1960, receipts for Monroe County rose 58 percent as compared with a 17.2 percent increase in population; for Pike County, liquor tax receipts increased 25 percent; population 8.7 percent. Since 1960 the rate of increase has been even greater -- 49 percent in Monroe and 30 percent in Pike for the four year period, 1960 through 1963. Sales tax receipts, available only for 1963 and 1964 (fiscal year ending June 30), bear out the evidence of expanding activity. In fiscal year 1964, sales tax receipts for Monroe were 33 percent greater than in 1963 and 23 percent greater for Pike.

Second Homes

The growth of second home development and the subdivision of land with which it is associated has been even more striking in the two counties. In both counties the number of occupied housing units at the time of the 1960 census in early April, as compared with the total number of housing units indicates a high level of part-time residence in the area. In Pike County, only one-third (3,130 out of a total of 9,612 units) were reported as occupied. At the same time, only 109 of the units were described as vacant and available for rental or sale. In other

words, nearly two-thirds of the housing units in the county were vacant, presumably because they were utilized by owners who had other residences elsewhere. In Monroe County, part-time occupancy was also high but constituted a much smaller proportion of the total -- 6,285 out of a total of 19,150.

LAND DEVELOPMENT AND THE VALUE OF REAL ESTATE While there is no precise measure of the amount of second home construction in the Pocono Counties since 1960, a visit to the area indicates that it has been considerable. Even more considerable has been the amount of raw land which has been developed and sold for building lots.

As land is developed it is not uncommon for ten-fold increases in value to occur in a relatively short period of time. Between 1960 and 1963, the market value of real estate increased by 15.8 percent in Monroe County and 18.7 percent in Pike, as contrasted with a gain of 8.1 percent for all counties in Pennsylvania. (See Table 10.)

TABLE 10. MARKET VALUE OF REAL ESTATE
(000's of Dollars)

Area	1960	1963	% Change 1960-63
Pike	\$ 62,000	\$ 73,500	18.7
Monroe	\$ 151,900	\$ 175,800	15.8
All Counties	\$34,322,700	\$37,087,900	8.1

These significant increases in land market values do not appear to be centered in any particular portion of either county. The implications of further subdivision for future increases in land values are obvious.

PUBLIC SERVICES AND THE TAX BURDEN The increases in property values in both counties, at least in recent years, have been sufficient to permit the maintenance of public services without substantial increases in the tax burden. This may not be apparent to residents of the individual townships because of the reluctance of local authorities to increase assessments as true market value rises. But if the tax levy as a ratio of true market value is computed to determine the true tax rate, expenditures as the county level in Pike remained at \$1.50 per thousand from 1961 through 1963 and at approximately \$3.50 per thousand in Monroe.

There is considerable variation among the townships, reflecting different responsibilities related to their population densities and their road maintenance needs. In the boroughs the tax burden was somewhat heavier since the level of public services included central water supply and in some cases, public waste disposal systems.

The expanding tax base resulting from summer usage by vacationers and second home owners who require no educational and few welfare services has enabled the area as a whole to keep abreast of growing costs of local government with ease. Whether this will continue to hold in the future will depend as much on the quality of future development as on its magnitude.

At present, the reliance on on-site systems of water supply and waste disposal present no

particular fiscal problems to the taxpayer. However, the poor bearing soils of the area, combined with the increasing population densities threaten to undermine the tax base by creating major health hazards.

The Future

DEVELOPMENT FACTORS What are the forces, apart from DWGNRA, which can be expected to affect the development of the Pocono Counties in the next 25 years; and what will be the nature of the changes?

Most important is the prospect that the metropolitan regions for which this area provides a summer playground will spread outward, absorbing (at least in the case of New York) as much additional land as they now occupy. This will enhance the drawing power of the Poconos as a recreation area.

It also means that some employment centers will grow away from the congestion of central cities. Pike and Monroe Counties will be within commuting range for large numbers of people who prefer a rural or semi-rural environment to a suburban one for year-round living. The prospects for expanding the existing industrial base and employment of Monroe County itself will be enhanced.

For many people who live and work in the urban cores, a second home in the country will become more desirable at a time when rising income and increasing leisure makes satisfaction of the desire possible. The summer home market will become even stronger, especially among the middle-aged who anticipate retirement to a recreation-oriented area easily accessible to the cultural and commercial attractions of New York and Philadelphia.

Realization of these possibilities will be stimulated by improved access to both counties which should be completed by 1975 when DWGNRA opens. Interstate 80 will provide a direct, high speed link between Monroe County and the New York and New Jersey portions of the New York Metropolitan Region. This highway will cross the county from Stroudsburg to Mt. Pocono where it will intersect with Interstate 81 to be constructed from Harrisburg to Scranton. (Interstate 81 continues north through Syracuse to the New York Thruway.)

The travel time from Manhattan to Stroudsburg will be reduced to little more than an hour of trouble-free driving as compared with perhaps twice that over the present congested roads. Interstate 84, which comes down from the New England portion of the New York Region, will cross Pike County running slightly to the north of Milford. Not only will this greatly improve the access to Pike County from the Northeast by the dualization of State Route 23 in New Jersey to a junction with I-84 near Port Jervis will link the county closely with the more densely settled portions of the New York Region to the East and South.

THE OUTLOOK FOR COMMERCIAL RECREATION It is no simple matter to quantify the effects of these forces upon the recreation economy of the counties. One can anticipate with confidence that the demand for commercial tourist facilities will continue strong. Assuming that the rates of increase in tourist and vacationer accommodations which were reported for the 1955-65 decade were repeated in the next decade, this would mean an addition of about 4,000 more rooms by 1975. The net increase might not, in fact, be so great since a number of the older establishments, constructed to the standards of an earlier and less demanding age, will doubtless be converted to other uses.

Various camp officials have reported a growing demand for camps of all kinds within easy reach of New York and Philadelphia. The number of parents who can afford summer camps for their offspring is growing and a high proportion, as in the past, seek a location near enough for frequent weekend visits. As large sites for camps become more costly and hard to find, there is some demand to convert obsolete resorts -- no longer profitable for tourist trade -- into commercial camps.

The future availability of developed recreation opportunities in DWGNRA to which campers can be transported for a large part of their activity program (particularly during the week), enhances the attraction of these outdated summer hotels for commercial camps, even when situated on relatively small sites. Furthermore, the National Park Service is cognizant of the needs of the area's organized camps and is prepared to collaborate on providing the requisite recreation opportunities.

PROJECTIONS AND ESTIMATES OF POPULATION AND HOUSING The trends in land development described in an earlier chapter of this report, examined in the light of the forces described above, represent the most significant element in the future of the two counties. Metropolitan spread and improved access will make themselves felt in terms, primarily, of new housing units and the people who will occupy them.

Population projections which are linked to historical trends can only reflect, at their most optimistic, the factors which have operated in the past. The potential for population and housing growth, contained in the estimates of Table 17, illustrate possibilities for the future under assumptions linked to past trends but adjusted to the new

development factors. For this reason the range is wide, illustrating the implications of a variety of possibilities for growth. Projections and estimates of population and dwelling unit construction for 1975 and 1985 are both included. Column II shows the 1975 population projections presented to the State Planning Board by Temple University as the most realistic and the most optimistic, respectively, for Pike and Monroe Counties. Column III provides a calculation of the number of housing units which would be built between 1960 and 1975 under two assumptions. The lower estimate is derived by applying the 1960 occupancy rates (of 3.3 for Monroe and 2.9 for Pike) to the projected population growth. The higher figure would be obtained if each county's average annual level of dwelling unit construction in the 1950-1960 decade were to be maintained throughout the period from 1960 to 1975.

Thus the higher figure includes the estimated construction of vacation as well as year-round homes at a rate comparable to the 1950's. There is every reason to believe that the construction of second homes will continue, at least at the 1950-1960 rate up to 1975, and the estimates of an additional 1,400 dwelling units for Pike and of 8,200 for Monroe are regarded as the more likely of the two.

The Pike County estimates of population for 1985 (Column IV), and of total housing construction between 1960 and 1985 (Column V) have a common base in the number of recorded lots in active subdivision. According to the County Assessor, there were at least 17,480 such lots in November, 1964. If two lots are used on the average for each house, these subdivisions contain a potential for construction of 8,740 houses. Assuming that two-thirds (i.e. 5,000) of these houses are built between 1960 and 1985, and that half of them (2,500) are occupied by year-round residents at the 1960 rate of 2.9 persons per

house, at least 7,250 people would be added to the 1960 population by 1985 (the low estimate in Column IV).

Middle and high estimates of population and housing illustrate what may happen if, as seems likely, more land is brought under subdivision, or if the ratio of two lots per house is reduced: The population increase (assuming the same ratios of occupancy and year-round use) between 1960 and 1985 could amount to 100-150 percent rather than the 80 percent of the low estimate. Similarly, a higher proportion of year-round occupants, or an extensive conversion of summer homes to year-round use, could increase the permanent population to the higher ranges without any extra subdivision.

Column VI is the difference between Column V and the higher estimates in Column III. It suggests the possible phasing of housing construction over the 25 year period.

In Monroe County the estimates for 1985 population and housing construction have been derived from a somewhat different base. Although it is known that during 1965 at least 12,400 lots had been recorded in new subdivisions, the number of previously existing subdivided lots not yet built upon is not known. ^{5/} Therefore, this could not, as in Pike County provide a basis for estimating growth. Instead, the

^{5/} Between 1960 and 1965, 16,965 lots were contained in the subdivision plans filed in the County Recorder's office according to the Pennsylvania State Planning Board.

low estimate in Column V of 13,700 housing units to be constructed between 1960 and 1985 is derived from the same assumption as that for the high 1975 housing estimate -- i.e. that the average annual housing construction rate of about 550 units per year which was established during the 1950's would continue up to 1985.

The low 1985 population estimate of 63,000 in Column IV is based upon the assumption that only one-half of the new houses would be occupied year-round and that the 1960 occupancy rate of 3.3 persons per house would continue. The medium estimates for Monroe are based on continuation of the most optimistic of the projections prepared for the State Planning Board by Temple University. ^{6/} This shows an average annual population growth of 1,000 or a 1985 population of 75,000. If achieved, housing unit construction would amount to 21,500.

The high estimates were based on a still more optimistic premise that the average annual rate of population growth in Monroe County might approach the 4.6 percent estimated for Warren County, New Jersey (which has a somewhat similar economic structure and is the next county to the East). In this case, the number of new units would rise to 24,000 and the

^{6/} The Temple projections for Pike and Monroe are part of a statewide study contained in: Temple University Office of Research and Specialized Services, The Population of Pennsylvania, Projections to 1980, Harrisburg, 1963

population, to 85,000. (In both medium and high housing estimates the occupancy rate and proportion of vacation units were those used in the low.)

In view of the amount of land now under subdivision, the improved highway access to metropolitan centers with two major interchanges within the county, and the vulnerability of the county to metropolitan spread from both East and South, the medium and high estimates illustrate what may be in store for Monroe County in the next two decades. 7/

7/ Given the high expectations of growth in year-round population over the 1960-85 period, our choice of the conservative estimates for 1975 may appear over-restrained, particularly in light of the completion of the Interstate highways before that date. We anticipate, however, that during the five year period, 1970-75, there may actually be a temporary slow-down in the rate of increase. Construction of the dam and recreation area will be under way. Furthermore, Route 209, the main north-south spine of the two counties will be in the process of relocation (see Chapters II and VII), and normal communications (particularly to the large number of subdivisions which neighbor 209) will be hampered until the facility is in place. Actual construction of vacation homes and occupancy on a seasonal basis may not be interrupted by these events, but the desirability of the area for year-round residence may be repressed until the earth-moving is complete. Thus the full thrust of expected population growth will probably not materialize until after 1975.

RESIDENT SUMMER POPULATION Finally, it might be interesting to examine the implications of the 1985 housing estimates for summer residential occupancy. If 50 percent of the new construction (as is assumed) is for vacation use, the range in Pike County would be from a low of 2,500 to a high of 7,200. At hypothetical occupancy rates of four persons per unit, the increment to the summer population would range from 10,000 to nearly 28,000.

On a similar basis Monroe summer resident increase would range from 27,000 to 48,000. The estimated summer home occupancy in 1960 was around 50,000 for the two county area. The 1985 range would thus be 87,000 to 126,000. When added to the potential year-round residents and resort visitors, the summer densities are truly staggering. Viewed in this prospective, the concern for pollution control becomes an imperative.

WARREN AND SUSSEX COUNTIES

The Present

In contrast with the Pennsylvania side of the Delaware, the river valley in New Jersey is relatively broad. It is terminated on the East by the Kittatinny Ridge. When the Tocks Island Reservoir is filled, much of this bottom land, at present devoted to farming and some residential occupancy (largely part-time) will be flooded in Sussex County and in the northern part of Warren above the Water Gap where the River makes an abrupt and scenic cut through the Ridge. East of the Kittatinny Mountains, which are largely in public recreation use (High Point State Park and Stokes State Forest), there

lies a broad rolling valley dominating the central half of Sussex. The low ridges and valleys of the Jersey Highlands lie along the eastern border of Sussex and extend across most of the southern part of Warren.

East of the Kittatinny the terrain presents no barriers to access or development, although the somewhat more hilly character of Warren may limit the intensity of future growth.

POPULATION Population in the two counties in 1960 totalled 112,475 according to the census. Sussex County's population, the lower of the two, has shown a remarkably high rate of growth in the past decade compared to the rest of the DWGNRA area.

TABLE 11a. POPULATION-COUNTY TOTALS

County	Population 1950	Population 1960	% Increase 1950-60
Sussex	34,423	49,225	43.1
Warren	54,374	63,220	16.3

Source: U. S. Census of Population

Although the two counties have already begun to feel some effects from the spread of the New York Metropolitan Region, they remain among the most rural in the State. In the 1960 census only 37 percent of the Sussex population was classified as urban; 50.8 percent in Warren.

Most of the population increases of the 1950 decade did not occur in the urban centers but in outlying townships. The extent of population growth outside urban places between 1950 and 1960 was similar, 39.9 percent and 42.7 percent for Warren and Sussex, respectively. No urban place in Warren and only Hopatcong in Sussex have shown higher growth rates.

The population of Sussex County is rather widely dispersed, the largest concentration located at Newton, the County Seat in the center of the county. The greatest growth during the 1950-1960 decade occurred in the townships of Sparta (122 percent) and Hopatcong Borough (189 percent) which are on the eastern edge of the county and have a strong recreational character. Originally summer lake-front colonies, they have become bedroom communities for commuters to jobs in the Metropolitan Region.

In contrast, Phillipsburg and two adjacent townships contain nearly 40 percent of the Warren County population. An older manufacturing city, which is part of the Allentown-Bethlehem-Easton industrial complex across the Delaware in Pennsylvania, Phillipsburg plays a leading role in the economy of the county. On the county's eastern edge Hackettstown, Washington Borough, and their suburbs contain another 30 percent of the population.

Population characteristics of the two counties differ only slightly. In both, the population is largely white and native-born. Age distribution is slightly weighted toward older persons relative to the State as a whole and to the United States. Neither county's population can be characterized as evidencing a high proportion of retired persons.

TABLE 11b. PERCENTAGE OF POPULATION 65
YEARS OR OVER

Area	1960	1950
Sussex	10.4	10.0
Warren	11.6	10.7
New Jersey	9.2	8.1
United States	9.1	8.4

Source: U. S. Census of Population

Although both are contiguous to the western rim of the New York Metropolitan Region, Sussex County is gaining many more new residents as a result of in-migration than is Warren. Table 11c shows that Sussex County exhibited a substantially higher level of net civilian migration as a proportion of population growth than did Warren in the decade of the 1950's.

TABLE 11c. CIVILIAN MIGRATION

County	Net Gain Through Civilian Migration 1950-1960	Civilian Migration as % of Population Growth, 1950-1960
Sussex	10,245	69.0
Warren	3,659	41.3

LABOR FORCE The labor force in both counties has grown in the past decade, but at strikingly different rates. Between 1950 and 1960, the labor force grew by 36 percent in Sussex but by only 9.7 percent in Warren. Compared with the State (18.8 percent) and national (15.3 percent) rates, Warren's is low and Sussex', extremely high. Coupled with Sussex County's great population increase and high immigration, the growth in the labor force indicates that much of the population increase was composed of persons in the working age groups. The labor force participation rates for both counties were similar, approximately 55 percent, and only slightly below the national rate. A somewhat lower level of participation on the part of women may account for the difference.

INCOME Median family income in both counties was low in comparison with the State as a whole (since the New Jersey level is among the highest in the Nation). Although Warren was somewhat below the United States median of \$5,600, Sussex was above, reflecting its increasing ties to the Metropolitan Area.

TABLE 12a. MEDIAN FAMILY INCOME, 1959

Area	Median Family Income
Sussex County	\$5,860
Warren County	\$5,111
New Jersey	\$6,786
United States	\$5,600

Source: U. S. Census of Population

Table 12b shows that the two counties compare very favorably with the Nation in respect to proportion of families with very low incomes although less favorably with the State as a whole. In percentage of high income families, Sussex is considerably better off than Warren.

TABLE 12b. DISTRIBUTION OF MEDIAN
FAMILY INCOMES, 1960

Area	Percent Less than \$3,000	Percent Equal to or Greater than \$10,000
Sussex	15.4	15.9
Warren	16.3	10.9
New Jersey	11.4	22.0
United States	21.4	15.1

Source: U. S. Census of Population

EMPLOYMENT The changes in employment which occurred in the two counties during the 1950-1960 decade reflect very accurately their relative increases in labor force and population. While manufacturing was the most significant industrial sector for each in 1960 (See Table 13), the employment increase was only 10 percent in Warren while in Sussex it was nearly 125 percent, demonstrating the dynamic growth forces at work in the latter.

According to data provided by the New Jersey State Employment Security Division, seasonal fluctuation in covered employment is small. Although these data are not so comprehensive as those contained in

TABLE 13. EMPLOYMENT BY INDUSTRY SECTOR, 1960

Industry Sector	1960	Percentage Distribution of 1960 Total	Percent Increase 1950-1960
<u>SUSSEX COUNTY</u>			
Agriculture, Forestry & Fisheries	1,734	9.9	-25.5
Mining	332	1.9	-72.8
Construction	1,470	8.4	16.0
Manufacturing	5,323	30.5	123.7
Transportation, Communi- cation, Public Utilities	1,080	6.2	86.9
Wholesale & Retail Trade	2,781	15.9	44.3
Finance, Insurance & Real Estate	902	5.2	89.5
Services	3,072	17.6	48.3
Public Administration	<u>777</u>	<u>4.4</u>	96.2
Total	17,471	100.0	
<u>WARREN COUNTY</u>			
Agriculture, Forestry & Fisheries	1,558	7.0	-34.8
Mining	232	1.0	13.7
Construction	1,288	5.5	1.5
Manufacturing	10,301	44.2	10.1
Transportation, Communi- cation, Public Utilities	1,417	6.1	1.0
Wholesale & Retail Trade	3,821	16.4	12.0
Finance, Insurance & Real Estate	561	2.4	52.4
Services	3,563	15.3	22.7
Public Administration	<u>547</u>	<u>2.3</u>	10.1
Total	23,288	100.0	

Source: U. S. Census of Population

the U. S. Census of Population, they are more current and reflect changes in the number of jobs within the counties rather than changes in employment of county residents. Table 14, which shows the covered employment in selected months of 1961 and 1963 for both counties, indicates that jobs within Sussex County have been increasing steadily -- about 10 percent over the three years, while in Warren the total has declined slightly.

TABLE 14. COVERED EMPLOYMENT

Period	Sussex County		Warren County	
	1963	1961	1963	1961
January	7,216	6,332	14,669	14,478
March	7,248	6,375	14,778	14,895
May	7,613	6,755	14,982	15,101
July	7,672	7,113	14,748	15,400
September	7,518	7,061	14,746	15,511
November	7,648	7,034	15,106	15,682
Annual Average	7,486	6,778	14,838	15,178

Source: New Jersey State Employment Security Division

In September, 1963, of the major manufacturing activities in Warren (according to the New Jersey State Employment Service) non-electrical machinery employed most people (3,722), principally in Phillipsburg. Chemicals and allied products (1,072) and food and

kindred products (1,037) were next in importance. The chemical industries are located in Phillipsburg, Washington, and Hackettstown, and the major food processing plant is in Hackettstown. Textile products, paper and allied products, and fabricated metal products were also important sources of employment.

In Sussex, apparel and needle products (604) was dominant; chemicals and allied products (220) and stone, glass and ceramics (180) were next. These industries are distributed among the county's manufacturing centers of Newton, Hamburg, and Franklin, and to a lesser extent in Stanhope and Sussex. In Newton the expansion of the industrial base is particularly striking.

A large proportion (approximately 28 percent of the workers from each), were employed in other areas. A 1958 study of commuting patterns in New Jersey counties showed that while the number of in-commuters was relatively small except from the tri-city area of Pennsylvania to Phillipsburg, out-commuting from Warren County to Hunterdon and Morris was substantial. A large proportion of the out-commuters from Sussex worked in Morris and Passaic Counties. The anticipated future growth of these latter employment areas has as much significance for the continued role of Sussex as a bedroom community as does its own rapidly expanding industrial base.

Although agriculture as a source of employment declined sharply during the 1950's, in line with a nationwide trend, both counties retain a largely rural quality due to the high proportions of land area which remain in farms. (See Table 15). At the time of the last agricultural census, Sussex led the State in production of milk and dairy

products and Warren ranked third, but there are signs that changes are under way, at least in Sussex. There, it is now reported that land speculators are acquiring agricultural land for future development, and that many farms are being operated by former owners on lease.

TABLE 15. PERCENTAGE OF LAND AREA IN FARMS

Year	Warren County	Sussex County
1954	48.9	41.8
1959	39.3	30.5

Source: U. S. Census of Agriculture

RECREATION The beautiful rolling countryside of Warren and Sussex Counties has provided less dramatic attraction for commercial recreation development than the more rugged Poconos. This, as well as the high value agricultural uses to which it is suited, accounts for its present, largely undeveloped state. As a result, commercial recreation facilities are few and have no apparent impact on the economy.

On the other hand, in Sussex County the number of second homes -- i.e. those listed as vacant but not for sale or rent at the time of the 1960 census -- was substantial, making up about 40 percent of the 25,000 total. There is a concentration of these around Sparta and Lake Hopatcong in the eastern part of the County. (Both of these areas are becoming year-round residential communities also.) Many farms in the central valley have been taken over for part time residential use as well, and there is the beginning of "second-home subdivision" near the Kittatinny Ridge. In Warren fewer part-time

homes are found -- only about 1,600 from a total of 21,300.

The employment impact on the economy of part-time residents is slight but there is some evidence that activity is greater in Sussex than Warren. The State Employment Security Division provided data for 1963 on employment in small services and amusements which show that Warren County, with a larger population than Sussex, had fewer people employed in this category and that the seasonal variation from January to July was smaller.

An enterprise common to both counties is the residential summer camp. The number of camps has grown over the years in both counties; from 31 in 1941 to 41 in 1964 in Sussex, and from 20 to 27 in Warren.

In general it appears that the impact of recreation upon the economy of the two counties has been minimal, except to the extent that second homes have increased the tax base without requiring proportionate expenditures for services.

REVENUES AND EXPENDITURES Valid comparisons of changes in the tax base among localities have been possible in New Jersey only since a uniform formula of equalized valuation for estimating true market value was introduced in 1960. This makes it possible to identify the changes in property values independent of local assessment practices which vary from township to township.

The three year increase in equalized valuations in both counties is substantial and shows that in Sussex the growth exceeded that of the State while in Warren it was somewhat lower. The tax levy in Warren increased more during the period and expenditures rose more rapidly than the tax base.

TABLE 16a. EQUALIZED VALUATION OF REAL ESTATE

Area	1963 (\$000)	1961 (\$000)	% Change 1961-1963
Sussex	\$ 387,952	\$ 331,351	17.1
Warren	290,520	260,814	11.4
New Jersey	34,429,765	30,356,448	13.4

The tax levy as a proportion of equalized valuations (i.e. the true tax rate) declined slightly in Sussex from \$6.20 per thousand for the county budget in 1961, to \$5.90 in 1963. For the same period the rate per thousand in Warren rose from \$6.70 to \$6.90.

TABLE 16b. TAX LEVY

County	1963 (\$000)	1961 (\$000)	% Change 1961-1963
Sussex	\$2,281	\$2,063	+10.5
Warren	1,957	1,667	+17.4

Just as in Pennsylvania, the localities are responsible for providing the largest part of local services. In the two New Jersey counties, the ratios of tax levy to equalized valuation were much higher. They also varied widely among the townships. In Sussex, the range was wide reflecting not only changes in land values but the level of public services supplied and their quality. Newton, a remarkably attractive and well run little city had the highest local

tax rate of \$36 per thousand in 1963, reflecting growing urban needs in an expanding community. Walpack Township which is entirely rural and has the smallest population had the lowest rate in relation to its tax base.

Extraordinary three year increases in equalized valuation in both Walpack (113 percent) and Sandyston (49 percent) are a reflection of the speculative land transactions and vacation home development which are occurring on the perimeter -- and possibly within the taking areas -- of DWGNRA. This is a harbinger of things to come elsewhere in the county.

The Future

DEVELOPMENT FACTORS The same development factors which will shape the future of the Pennsylvania counties in the DWGNRA area are at work in New Jersey. But the differences in the quantity and quality of the developable land, greater proximity to the New York Metropolitan Region, and the differences in the present economies of the counties will produce quite different results.

It has been forecast by the New York Regional Plan Association that between 1960 and 1985, a spill-over of population from the region amounting to 400,000 will occur in the fringe New Jersey counties of Sussex, Warren, Hunterdon, and Ocean. These people will reside full-time in these counties, although they may or may not work there. Already this spill-over is evident in Sussex and the completion of Interstate 80 through Sussex and Warren will accelerate the trend.

More significant, perhaps, for Warren will be the completion of Interstate 78 which will link

Phillipsburg much more closely with the industrial complex to the East. One has only to look at the current state of development of U. S. Route 22 as it runs eastward through the State to Newark. From Newark almost to the Warren County line is a solid strip of commercial, industrial, and residential development along the road. Reduced travel time on high speed I-78 will accelerate extension of this corridor.

Growth of second homes in the western part of both counties will probably continue. However, their ultimate conversion to year-round occupancy is likely to take place in the same way that occurred in Sparta and Hopatcong, perhaps with an even shorter time lag. In any case, the second home population will not be so major an element in the local economy as is foreseen in the Poconos.

Trade and service activities which accompany suburban growth are likely to play an increasing part in the economy of both counties. There will be some increase in commercial facilities to serve the tourist and vacationer particularly due to DWGNRA which will require introduction of such activity into Warren and Sussex really for the first time. But such development will be a minor part of the total land development and construction.

PROJECTIONS AND ESTIMATES OF POPULATION AND HOUSING In the same way that the 1960-1985 potential for population and residential growth was presented for the Pennsylvania counties in DWGNRA's impact area, Table 17 gives the range of possibilities for New Jersey as well. The 1975 population projections are those prepared by the New Jersey Division of State and Regional Planning and appear in Column II.

In Column III are estimates of housing construction to 1975 based on the following assumptions: The lower ranges are based on the assumption that the 1960 occupancy rates of 3.4 persons per dwelling unit in Sussex and 3.3 in Warren will persist through 1975. The higher estimates assume a continuation of the trend in average annual dwelling unit construction that prevailed during the 1950-60 decade. These figures indicate a possible growth in Warren County to about 81,000 people and in Sussex to about 74,000 people by 1975, with a high estimate of about 18,000 new dwelling units for the two.

The 1985 estimates reflect the extremely broad range of growth possibilities that face the counties in this coming period. For a full understanding of these possibilities the 1960-85 estimates are perhaps more relevant than the interim 1975 figures. For Warren County, the Division of State and Regional Planning projects a 1985 population between 90,000 and 96,000, an increase of 27,000 - 33,000 over the 1960 level. At the 1960 rate of 3.3 persons per dwelling unit, this growth would require about 8,200 to 10,000 new dwelling units in the county for year-round occupancy. An equal number of vacation homes would put total construction of houses at 16,000 to 20,000. Growth could be even more substantial, however, if it approximates the 1950-60 growth rates of the adjacent ring of counties toward the core of the New York Metropolitan Area. Warren County's population could reach a level as high as 126,000 - 158,000 by 1985. In this case additions to the county's housing stock might number as many as 30,000 dwelling units.

For Sussex County, an extremely detailed set of population projections was made by Alvin E. Gershen Associates. ^{8/} These projections were related to the land development potential of the county, its economic base, and relationship vis-a-vis the Metropolitan Area. They have been employed here, with the qualification that the highest level of population estimated (and the dwelling unit construction estimates based on it) are illustrative of an outside maximum demand level not entirely relevant to realistic expectations. They should not be given so much weight as the other estimates and are set off by parentheses.

Gershen projects the 1985 population of Sussex County at levels ranging from 133,000 to 287,000. Corresponding increases over 1960 level would reach 84,000 to 238,000. At an occupancy rate of 3.4 persons per dwelling unit, 25,000 to 70,000 units would be required. If all the "vacant - not for sale" houses so designated in the 1960 census (presumably vacation homes) were used for year-round residences by 1985, there still would be a market for 15,000 to 70,000 new dwelling units.

Thus (leaving aside Gershen's highest estimate), the total population of the two counties could grow from 112,000 in 1960 to 445,000 in 1985, or over 300 percent, and some 90,000 dwellings might be built in the period.

8/ Sussex County, Master Plan Series Report #1,
May, 1962.

TABLE 17. GROSS ESTIMATES OF POPULATION GROWTH AND HOUSING CONSTRUCTION IN THE FOUR COUNTIES MOST AFFECTED BY DWGNA DEVELOPMENT, 1960 - 1975 AND 1975 - 1985

County	1960 Population (000)	Projected 1975 Population 1/ (000)	Estimated Housing Construction 1960-1975 (No. of Units)	Estimated 1985 Population (000)	Total Estimated Housing Construction 1960-1985 (No. of Units)	Estimated Housing Construction 1975-1985 4/ (No. of Units)
	I	II	III	IV	V	VI
<u>Pennsylvania</u>						
Pike	9.2	11.1 - 13.5	650 1,400	16.4 18.0 27.0	5,000 7,800 14,300	3,600 6,400 12,900
Monroe	39.6	50.9 - 60.4	3,400 8,200	63.0 75.0 85.0	13,700 21,500 24,000	5,500 13,300 15,800
<u>New Jersey</u>						
Warren	63.2	78.2 - 80.9	4,500 - 5,400 6,300	90.0 2/ 126.0 158.0	16,000 20,000 30,000	9,700 13,700 23,700
Sussex	49.2	72.0 - 73.7	6,700 - 7,200 11,500	133.0 3/ 287.0 3/ (751.0) 3/	15,000 60,000 (196,000)	3,500 48,500 (184,500)
Four-County Total	161.2	212.2 228.5	15,250 16,800 27,400	302.4 506.0 (1,021.0)	49,700 109,300 (364,300)	18,900 78,500 (233,500)

1/ Sources for Column II: for Pike and Monroe Counties, Pennsylvania State Planning Board, The Population of Pennsylvania, June 1, 1963; and for Warren and Sussex Counties, State of New Jersey, Division of State and Regional Planning, Population Projections for New Jersey Counties.

2/ Source: Division of State and Regional Planning Projection, Op. Cit.

3/ Source: The 1985 Sussex County projections are from Alvin E. Gershen Associates, Sussex County New Jersey, Master Plan Series Report #1, May, 1962. The highest range estimates and the dwelling unit construction figures derived from them (see text) represent an outside maximum based on assumptions not entirely relevant to this study. They are presented for illustrative purposes only and distinguished by parentheses.

4/ Computed differences between Column V and the higher range estimates in Column III.

Note: Unless so designated above, all other estimates are derived by Robert R. Nathan Associates, Inc., on the basis of assumptions discussed in the text.

PORT JERVIS, NEW YORK

Orange County as a whole is one of the Outer Ring counties of the New York Metropolitan Region and as such has experienced a rapid rate of growth since 1950. This growth, however, has been largely confined to the eastern half of the county which is quite distinct from the DWGNRA area, borders on the Hudson River, and has a completely different orientation to Metropolitan New York. 9/

The city of Port Jervis at the far western extremity of Orange County has not shared in this growth. Lying at the confluence of the Neversink and Delaware Rivers, it experienced its great expansion when river and wagon trail traffic made it a junction of some importance. This was later reinforced by the building of railroads in the valleys of the rivers. With the shift of freight transport to the highways, the location of Port Jervis lost much of its strategic value and it has remained static as the eastern parts of the county have grown.

In the city itself, and the three towns which surround it -- Deerpark, Greenville, and Mount Hope -- there has been a net increase in population of less than 200 between 1950 and 1960, bringing the population of the four jurisdictions to 12,360. The population in the city declined slightly during the decade

9/ While illustrative of metropolitan expansion, most of Orange County is outside the orbit of DWGNRA influence and direct impact. The county is therefore not discussed here to the detail of the Pennsylvania and New Jersey analysis.

but this was more than offset by growth in the outlying towns. A small additional increase in the population of Matamoras Borough across the Delaware River in Pike County can also be attributed to the employment opportunities which the industries of Port Jervis offer.

Although there are some summer camps and a number of lodging places North of Port Jervis and in the Neversink Valley, recreation-oriented development at present plays a relatively small role in the economy of the area.

The future prospects of Port Jervis like the past, appear to depend on its ability to preserve and expand its manufacturing base and its role as a trading center for the surrounding towns in Orange County and adjacent portions of Pike and Sussex Counties. 10/

Completion of I-84 and conversion of New Jersey Route 23 to a limited access expressway will significantly improve these prospects, particularly for manufacturing. For then Port Jervis, like Stroudsburg to the South, will have the benefit of excellent highway access to the metropolis.

Much of what happens, however, will depend upon the imagination with which Port Jervis organizes its resources to meet the challenges inherent in its position.

10/ A Development Plan for Port Jervis, New York, by Raymond & May Associates which goes into the economy of the city in considerable detail was submitted in November, 1963.

A NOTE ON NORTHAMPTON COUNTY, PENNSYLVANIA

A number of parallels may be drawn between Northampton County, Pennsylvania and Orange County, New York. Both have an extreme tip of their land area adjacent to the DWGNRA site, neither will have access onto the future Park itself, and both are generally oriented away from the Delaware River.

Historically, Northampton County has been linked with Lehigh County to its west. The main economic activity of both has concentrated in the Lehigh River Valley - at first in the Allentown-Bethlehem complex in the elbow of the Lehigh River, and later extending eastward as transportation developments drew the cities of Easton and Phillipsburg into the metropolitan sphere of influence.

This whole area has been traditionally dependent on manufacturing industry (predominantly steel, cement and non-electrical machinery) for a major part of its employment. Greatly reduced labor requirements in these industries, together with experience of a general nationwide trend toward decline in relative importance of manufacturing employment, have brought the Lehigh Valley into a difficult period of transition.

Bi-county planners have been wise in recognizing that opportunities for future economic growth lie in proximity to New York and Philadelphia and the excellent highway connections to both metropolitan areas. The Northeast Extension of the Pennsylvania Turnpike has already engendered the growth of some industry to the west of Allentown where it passes on the way north from Philadelphia to Scranton and Binghamton. New Interstate Highway 78 will follow the corridor of the present U. S. 22, linking the

Allentown-Bethlehem-Easton chain even more closely with New York.

In the 1950-1960 decade Northampton County population grew at a rate just over half that of Warren County, New Jersey. It is doubtful that the impact of population "spillover" from New York will be so strongly felt in Northampton County as in Warren. Nevertheless a stimulated interest in suburban construction cannot but influence Northampton County, particularly in its northeast section where it adjoins part of the DWGNRA area.

If current studies of the Pennsylvania Highway Department should lead to construction of a realigned and upgraded Section of U.S. 611 linking Interstates 78 and 80 between the outskirts of Easton and Wind Gap, Philadelphians will have a more direct route to DWGNRA and a limited amount of highway-oriented commercial development may occur. A more significant effect of this 611 highway would be its very likely acceleration of subdivision activity and suburban development in the eastern part of the county.

RECENTLY-COMPLETED STUDIES
ON THE ECONOMY OF
THE DWGNRA AREA

Pennsylvania

1. Commonwealth of Pennsylvania, Pennsylvania State Planning Board, Regional Development Reconnaissance, Region 3, Harrisburg.
2. Pennsylvania State University, College of Business Administration, Bureau of Business Research, An Economic Survey of Monroe County, 1959.
3. Pike County Agriculture and Home Economics Extension Service, Pike County Growth, Milford, 1961.
4. Joint Planning Commission, Lehigh-Northampton Counties, Employment, Income and Expenditures, and The Regional Business Cycle, 1963.

New Jersey

1. Alvin E. Gershen Associates, Sussex County, Master Plan Series Report #3, Economic Base Analysis, Trenton, 1963.
2. Herbert H. Smith Associates, The Economy of Warren County, West Trenton, 1962.
3. State of New Jersey, Department of Conservation and Economic Development, "Population and Economy of New Jersey," Chapter 5 of omnibus economic and physical analysis of New Jersey, 1964.

New York

1. Raymond & May Associates, A Development Plan for Port Jervis, White Plains, 1963.

V. THE IMPACT, MEASURABLE AND NON-MEASURABLE

A conceptual framework for analyzing DWGNRA's impact on its immediate environs has been established by the preceding chapters. Emerging from the picture of the project and the area into which it is to be introduced are the features which will shape developments to come:

1) The uniqueness of the DWGNRA facility as the only inland water-oriented National Recreation Area serving the Northeastern United States;

2) DWGNRA's geographical location which puts it in a position to serve the most populous and densely settled urbanized part of the country;

3) The major Interstate and other express highways giving access to the Recreation Area which make day-outing use by these millions of people possible, at the same time opening the surrounding countryside to the pressures of metropolitan growth from the East and the South; and

4) A traditional function and image (for a major part of the DWGNRA area) as vacation place for the New York and Philadelphia Metropolitan Regions.

There is really very little precedent for projected levels of DWGNRA visitation in terms of impact on the DWGNRA counties. A number of existing recreation developments have been studied which are, in at least one respect or another, analogous to DWGNRA, but in no case were the findings, particularly the quantitative ones -- directly applicable to the area of present concern.

THE DISTINCTIONS OF DWGNRA 1/

Generally, the impact of the recreation areas studied has come in the form of higher land values near the facility, a certain amount of land speculation, stimulation of the local construction industry, increase in quality and variety of services offered in the nearby towns, growth in retail trade, and considerable homesite as well as commercial recreation development close to the facility, particularly where a body of water was involved.

We can expect the effects of DWGNRA to be basically similar, with a few notable exceptions.

Acquisition of land around the reservoir and its development as a public recreation facility under the aegis of the National Park Service, not only insures the quality of the ultimate shoreline development, but also removes the potential competition among other uses for waterside land. This shifts the pressure for development of tourist services and accommodations outside the immediate recreation area.

Another important distinction of the DWGNRA project is its role as but one force in a complex interplay of influences on the area of impact. While the prospect of the reservoir-recreation complex undeniably has had something to do with the rapid rates of land subdivision and residential construction, it is clear that even more important as causal factors

1/ A list of analogue studies appears at the end of this chapter.

are the new highway accessibility of the area, the number of small lakes -- natural and man-made -- around which the houses can actually be built, growth trends in the second home market and metropolitan spread from New York and Philadelphia. This housing development itself has been shown to have an inflationary effect on land values in the DWGNRA counties, and it cannot but have a significant impact on the local construction industry.

Nor will DWGNRA be the sole new force affecting levels of retail and service trade. The families occupying the new vacation homes, the retirement settlers, and the new exurbanites will constitute a major stimulus to local business.

In adjusting to accommodate growth, the existing business base will face a situation without parallel in the other cases that have been studied. Unlike many an agriculturally-oriented community into which a reservoir project and its attendant phenomena have been introduced, the DWGNRA counties have long been used to serving city dwellers on vacation. Indeed, the summer trade comprises a major and growing part of the area's business activity, as pointed out in the last chapter. In many respects the requirements of the new homeowners, though possibly differing in magnitude, will be very similar to those that are already being satisfied in the area. There will be day to day needs for groceries and drug store items, for example, and to some extent, desire for special vacation paraphernalia and gifts or other such impulse purchases.

DWGNRA visitors, however, present an entirely different situation. Quite literally, the difference between these visitors and the new summer

residents or the familiar resort vacationers will be one of night -- or overnight -- and day. It was indicated earlier that the typical DWGNRA users will be families with children on a day's outing, perhaps for active outdoor recreation or merely enjoyment of the natural scenery. Many of these people will fill the gas tanks of their automobiles before leaving for the Park and will make their purchases of food for picnics or of sporting equipment at home as well. The main focus of these visitors' interest will be the outdoors; and overnight accommodations, to the extent they will be required by this group, will be less of the organized resort variety and more on the order of commercial transient facilities -- motels, cabins, or campsites. 2/ Once they reach DWGNRA, these short-term recreationists or sightseers will want to make the most of their limited time in the Recreation Area itself. They will be less willing to travel any distances for food, lodging, or even other necessities (much less leisurely browsing through curiosity shops) than people who stay in the area for longer periods.

This is not to say that DWGNRA will be unpatronized by other categories of people as well -- by the cross-country travellers who come to National Parks and others who "take in" a number of visitor attractions in the course of a long trip, by campers or others spending their full vacation among

2/ If cabin cruisers or other craft with sleeping accommodations are to be permitted on the reservoir -- depending on their number -- the families desiring to spend the night on their boats may constitute a considerable proportion of the overnight visitors.

the unique recreation facilities, by visitors from other parts of the country bound for New York sight-seeing, and by vacation homeowners or patrons of the Poconos resorts. Of course, all of these people will be attracted to the area; but when the high-speed, top-quality express highway network shown in Figure 4 puts DWGNRA within one hour's drive of New York City and a little over two hours from Philadelphia, it is clear that these other recreationists will be overwhelmingly outnumbered by the "local" day-use visitors whose immense "demand" for these facilities is discussed in Chapter III.

The implication of DWGNRA for retail trade and services, then, will have some important ramifications relating to location, orientation, and type of establishment as well as over all levels of business generated.

THE BASIS FOR MEASUREMENT OF DIRECT IMPACT

The conceptual framework for analyzing the DWGNRA's relation to abutting counties has been intended to be as inclusive as possible, emphasizing the complexities of the circumstances surrounding the project and the future of the communities involved. This has been important to an understanding of the nature of the Recreation Area's impact and its relationship with other facets of development around it.

The approach to measuring impact itself has been somewhat defferent, seeking to isolate those developments of the future that could be strictly attributable to DWGNRA. Estimates of visitation and expenditure levels at the Park have been made on the basis of the best available information about experience in analogous situations, with adaptations to

fit the peculiarities of DWGNRA. From these estimates, then, others have been constructed: of the kind and number of facilities required to serve the visitor trade and the amount of land necessary for the development of these facilities. These latter calculations, in turn, have served as basis for fixing ranges of investment in the DWGNRA-generated facilities and of the employment which would be required in their initial building and eventual operation.

Secondary and tertiary developments proceeding from these initial DWGNRA stimuli might well be equally important in the long run growth of the area's economic base. Moreover, it is entirely conceivable that other forces operating on the area in conjunction with DWGNRA might have effects that far surpass anything DWGNRA alone could produce. It is not all difficult to think of a number of possibilities that would even raise the base levels of visitation at the Recreation Area or push the estimated expenditure figures upward. There may be large numbers of people who would not be willing to make the trip to DWGNRA for purposes of active outdoor recreation alone. But with facilities nearby offering a wide variety of year-round recreation and entertainment opportunities, they would be attracted to the area for enjoyment of the whole. A very high quality restaurant-overnight complex, for example, with an image and reputation that appeal, might attract more people from the higher income groups to the DWGNRA area than would otherwise come; and a well-developed, well-promoted group of commercial recreation facilities in the vicinity, which had some drawing power of its own might, because of the proximity of DWGNRA, be able to attract even more business. Parents visiting their children in nearby camps could be induced to stay in the area

longer, and pleasant quiet places may bring people who just want to "get away for the weekend".

Income levels, trends in taste, the quality of development in the surrounding communities, the full range of leisure time activities to be provided ultimately and perhaps other factors which are not known and cannot be predicted at this time could significantly increase and intensify the impact of DWGNRA. Therefore, the estimates presented in this study must be interpreted as minimum realistic levels of economic impact, quite capable of being exceeded.

Additional development of the sort described here will become possible because of DWGNRA, but not automatic. It will occur in direct proportion with the skill of private entrepreneurs in analyzing their potential markets and the quality of the product-mix they finally offer. This is not the whole story either. There is a most important role to be played by public groups in the area as well as private.

It may be observed time and again from the cases of analogous reservoir-recreation projects that the communities most successful in realizing their opportunities for growth and development were those which had a high degree of imaginative and inspired local public leadership. Most commonly this has been reflected in the manner of public development and control around the recreation facility.

DIRECT IMPACT - DOLLAR LEVELS OF EXPENDITURE

The people who will be using DWGNRA fall into two distinct categories, the "local" or day-outing visitors and the vacationists who travel longer distances to reach the Park and stay in the area for

longer periods of time. Among the first group are the sightseers and the people who live within a 150-mile radius of the Park, the majority of whom will be families coming for a day's active outdoor recreation. Vacation homeowners from the counties adjacent to the reservoir complex and patrons of the Poconos resorts are included in this group also.

The second category consists of the visitors from distances beyond 150 miles. The needs of these two groups will be quite distinct, having a considerably differential effect on the patterns of expenditures in DWGNRA itself and its immediate vicinity. For this reason the levels and distribution of expenditures have been estimated separately for each group. The final estimates shown in Table 18 are a composite of the two.

Day-Use Visitors and Campers

Under the assumption that the characteristic expenditures of DWGNRA's day-use visitors would be comparable with those of such visitors at Tennessee Valley Authority and other Corps of Engineers reservoirs, we have related our present computations to Clawson's information about these operating Federal reservoirs in 1960. According to these figures which were developed for the omnibu ORRRC study, the average expenditure per person per day in or near the Federal reservoir developments is about \$2.11. 3/

3/ Marion Clawson, "Private and Public Provision of Outdoor Recreation Opportunity", ORRRC Study Report 24: Economic Studies of Outdoor Recreation, Washington, D. C., 1962.

These estimates are based on experience at reservoirs built by the Corps of Engineers and the Tennessee Valley Authority.

In a subsequent section of the same ORRRC Study Report, the National Planning Association cites Corps of Engineers estimates of average per visit expenditures at or near some of their reservoirs in 1959 as follows: Texoma (on the Oklahoma-Texas border), \$3.10; Bull Shoals (in the Ozarks), \$2.90; Fort Gibson (Oklahoma), \$2.80; Norfork (on the Arkansas-Missouri border), \$2.50; Tenkiller (Oklahoma), \$2.20. Corps officials are quoted as pointing out that these estimates run well below what overnight and long distance vacationers spend per day, since they adjust their figures for the "substantial number of local people (nonspenders) who are counted each day as entering the grounds". It might be pointed out that Texoma and Fort Gibson count among their attractions very comfortable and tasteful lodges directly on the water's edge.

Considering that the usage of DWGNRA by "local" people will be similar in many cases to that of a state park, it may be helpful to compare expenditure estimates for reservoir and state park visitors. Clawson has developed a per person per day figure of \$1.68 spent in or near the facility from a composite of state park studies made for the following states: Arkansas, Colorado, Connecticut, Kansas, Minnesota, Montana, Pennsylvania, Virginia and Washington.

This total is distributed roughly as follows: For food - 32 percent (in restaurants and grocery stores); for lodging - 14 percent; for transportation (largely gas and oil for the family car) - 15 percent; and for miscellaneous items such as film, souvenirs, small recreation accessories, etc. - 35 percent. Charges for park admission (which vary from park to park) are not included but they are not relevant to this investigation of impact on the communities outside the Park. 4/

It must be borne in mind that the use of averages such as these tends to obliterate the large numbers and wide ranges of variation that are possible. While we may speak of the "typical" family group of DWGNRA visitors, by no means all users of the Park will share the characteristics of such a family. Out of a group of 10,000,000 recreation visitors from within a 150-mile radius of the reservoir there may be couples willing to spend \$30.00 on a weekend in the country, or families applying their entire vacation budget to a few days of intensive recreation at the new facility. By and large, though, we envision that more users than not will be trying to spread their recreation budgets over the largest number of outings possible.

4/ Major expenditures for sporting equipment are not included. When final decisions have been made on the facilities to be developed in the Park and the types of boats, for example, to be permitted on the DWGNRA reservoir, further study of the market for the purchase, service and storage of sporting equipment in or near the Park may be warranted.

Our "Food in Restaurants" category is adjusted slightly upward from Clawson's base figures to reflect the proportion of DWGNRA visitors who would be out sightseeing for the day and would, presumably, eat at least one meal in the vicinity of the Park. This would be a meal in a restaurant and would require at least twice the cash outlay of the typical recreation visitor who brings his picnic and whose restaurant food purchases are restricted to beverages, perhaps, or desserts for the children. (Those sightseers who do end up picnicking in the Park will become facility-users and will be, consequently, counted not as sightseers but as recreation visitors.)

Grocery purchases are adjusted slightly upward in expectation of the somewhat higher than average outlay by campers spending a period of several days in the Park.

Average expenditure for lodging is very low, reflecting the possibility that approximately 2,500,000 visitor-nights annually may be spent at campsites within the Recreation Area for minimal fees. As for the rest of the recreationists from the DWGNRA service area, rough calculations of average per person per night charges at such commercial transient facilities as they would use, indicate that about one visitor out of 17 would spend a night in the vicinity of the Park.

Transportation outlays are thought to be quite in line with Clawson's average of 31¢ per person (which would amount to about \$1.25 per vehicle arriving in the area or about one automobile in every four buying a tank of gas there).

Miscellaneous purchases are estimated at

levels close to the Federal reservoir guide figures.

Totals of the average expenditures derived, then, are \$2.84 per person per day for sightseers and \$2.08 for campers. Proportions of the money to be spent for each category of goods and services are quite comparable with the guide estimates.

Long-Distance Visitors

The cash outlays for long-distance visitors were handled in a different manner. A total expenditure of \$11.00 per person per day was estimated on the basis of 1) slightly higher-than-typical motel charges in the impact area at present, 2) judgment of average prices for meals, and 3) other visitor expenditure patterns adjusted to reflect those differences which would be due to the longer stay in the DWGNRA area. Recognition was also made of the likelihood that a number of these long-distance visitors would be among the campers, and others making an overnight stop in the area en route to someplace else.

Total Expenditures

When the distribution of long-distance visitor expenditures is superimposed on the estimates for the day-visitor group, the total expenditure level comes to \$28,455,000 or, let us say, \$28,500,000. Spread among the 10,500,000 annual visitor days anticipated for DWGNRA, the computed average expenditure per visitor-day is \$2.71. Broken down by category of recipient, the distribution is weighted somewhat more heavily toward expenditure for food and lodging (58 percent of total) than Clawson's estimates (46 percent), but then this reflects the characteristic skewing that may be observed in the Northeastern part of the United States.

Table 18 indicates the effect that the seasonal nature of the DWGNRA visitation will have on expenditures in the nearby communities. That 80 percent of the visitation is expected to occur during the 14-week summer season, is reflected in a similar proportion of expenditures for the same period. Of course, if facilities were so planned that intensive use of the Park might continue over a longer period and summer peaks were to be only 60 percent of the total visitation, annual expenditure levels might rise by over \$9,000,000. At the present time, however, there is no basis for making such an estimate.

Geographical distribution of expenditures is also shown in Table 18. The money is allocated between Pennsylvania and New Jersey in proportion with the share each state is expected to receive of the total visitation, 34 percent and 66 percent, respectively.

While these dollar impact figures have been derived within a context of the value of dollars in 1960, the relationships which they describe may be interpreted as holding true at the time of DWGNRA's completion. It may be assumed that any inflationary trends will affect the costs of providing goods and services in the same way as it would affect visitor expenditures.

DIRECT IMPACT - FACILITIES AND LAND REQUIREMENTS

Facilities

DWGNRA's capacity for generating commercial development is outlined in Table 19. The terms of reference are numbers and kinds of establishments

TABLE 18. PROJECTED EXPENDITURES IN THE VICINITY OF THE DWGNRA
ATTRIBUTABLE TO DWGNRA VISITORS
(In Thousands of Dollars)

Category	Total Annual Summer Season		Pennsylvania Side Annual Summer Season		New Jersey Side Annual Summer Season	
		14-Week		14-Week		14-Week
Total	28,500	22,800	9,700	7,800	18,800	15,000
Food						
In restaurants	9,000	7,200	3,100	2,500	5,900	4,700
For groceries	1,200	1,000	400	300	800	700
Lodging						
In commercial trans- ient facilities	5,700	4,600	1,900	1,600	3,800	3,000
At DWGNRA campsites	600	500	200	200	400	300
Transportation						
Gas and oil	3,000	2,400	1,000	800	2,000	1,600
Other	800	600	300	200	500	400
Miscellaneous	8,200	6,500	2,800	2,200	5,400	4,300

which DWGNRA visitor-expenditures could support. Ranges in the general order of magnitude are shown, illustrating the implications of quite a wide variety of alternative development possibilities.

Numbers of establishments are allocated between Pennsylvania and New Jersey in proportion with their respective shares of the estimated visitation and expenditures.

TABLE 19. FACILITIES WHICH MIGHT BE SUPPORTED BY
ESTIMATED EXPENDITURES OF DWGNRA VISITORS
(Number of Establishments)

Category	Total	Pennsylvania	New Jersey
FOOD			
Restaurants	40-80	15-30	25-50
Grocery Stores	2-3	1	1-2
LODGING			
(transient)	50-95	18-25	35-70
TRANSPORTATION			
Gasoline Stations	25-50	10-20	20-40
MISCELLANEOUS	35-60	20-40	15-20

FOOD Of the \$9,000,000 annual expenditure estimated for the "Food in Restaurants" category, approximately one-half would go to lodging-related eating places. (Given the seasonal nature of the tourist business envisioned here, a considerable portion of the lodging facilities to be required can be

provided only if the establishments involved have additional sources of revenue to supplement their anticipated room rents. Typically, and logically, restaurants supply this additional revenue.)

The remaining expenditure for restaurant food (between \$3,000,000 and \$4,000,000 during the peak season) will be divided between possible snacks purchased at concessions within the Park itself and facilities in the surrounding communities. Assuming these are restaurants in the 40 to 100 seat size class, with gross sales between \$25,000 and \$100,000 annually, approximately 40 to 80 establishments might be supported. Some of these might be associated with lodging facilities as well, or with other sorts of commercial activities such as moving picture theatres, general stores, drug stores, or gift shops.

Fairly small supermarkets in the 5,000 square foot size group are the basis for allocation of the grocery expenditures. Even so, it must be recognized that each square foot requires a certain annual level of dollar sales for its support and that the heavy volume of summer business will not continue throughout the year. Unlike the restaurants which must be able to accommodate peak demand and which may close during the off-season, the grocery stores do not lend themselves to seasonal operation. Therefore estimates for this type of business are quite low.

LODGING Estimated lodging expenditures translated into visitor-nights to be accommodated produces a range of 3,000 to 6,500 rooms. (Intermediate assumptions are: \$8.00 per person per night and an average of two persons per room.) The size range of projected transient lodging facilities is 25 to 100 rooms per establishment. Of the lower range projection (3,000 rooms for both sides of

DWGNRA) about one-third of the rooms might be supported on a viable year-round percentage-occupancy basis. With food sales equaling room sales and some additional supplemental income as well (from a gift shop, for example), the remaining two-thirds of the rooms might be provided on a fairly sound basis. As for the high end of the range (6,500 rooms), this represents the projected peak demand on summer weekends.

The wide spread between the lower and the higher figures for lodging demand has a number of implications, among them: that the shortage of weekend sleeping accommodation may flatten out the summer visitation peak, spreading the demand more evenly throughout the week; that initially high weekend peak demand for transient rooms may tempt marginal lodging operators to establish businesses with little hope of success and likely prospects of rapid dilapidation; that a number of potential overnight visitors from the areas nearest to DWGNRA may become day visitors instead. Much of what ultimately develops will depend on the quality of the facilities provided and their ability to attract overnight guests on more of a year-round basis. In this regard, well-run transient operations with outstanding restaurants, convention facilities, and exceptionally fine architectural and site development would clearly have an advantage.

Reports of the Pocono Mountains Vacation Bureau of nearly full occupancy in existing Pocono tourist facilities and the virtual absence of transient facilities near the Recreation Area on its New Jersey side indicate that all lodging development estimated here would be new construction or expansion of existing facilities.

TRANSPORTATION The lower end of the service station estimates is computed on the assumption that large, efficient operations (pumping on the order of 35,000 gallons per month) will establish themselves in the area and will be making annual sales of something on the order of \$168,000 each. The higher number describes the situation with smaller stations (two-bay, 15,000 gallons per month) grossing about \$72,000 per year. Of course, it is reasonable to expect that a certain amount of this gas and oil business might be absorbed by existing establishments. The pattern of the area's ultimate road system will be a major determining factor, however.

OTHER The "Miscellaneous" category envisions businesses in the \$50,000 to \$100,000 annual sales class. They might include general merchandise or variety stores, gift shops, fishing and boating or other recreation-oriented specialty shops, service establishments such as barber shops or laundromats and possibly summer theatres, motion picture theatres, pony ride rings, and other amusements.

Land

If we assume that all the DWGNRA business will go to newly-established facilities, and, further, that each establishment will be developed on an individual site with its own off-street parking and that there will be no clustering or sharing of parking facilities or service, we arrive at the land utilization figures shown in Table 20. Restaurants associated with gasoline stations or stores in the miscellaneous group would require one-third to one-half of the acreage indicated, and even less if the development were to occur in a town. Therefore, the land areas suggested here must be interpreted as the maxima likely to be developed in commercial facilities to serve the DWGNRA visitors.

TABLE 20, LAND REQUIREMENTS FOR FACILITIES GENERATED
BY DWGNRA VISITOR EXPENDITURES
(In Acres)

	Total	Pennsylvania	New Jersey
FOOD			
Restaurants	14-19	4-7	10-12
Grocery Stores	1.5	0.5	1.0
LODGING (transient)	75-325	25-110	50-215
TRANSPORTATION			
Gasoline Stations	13.5	4.5	9.0
MISCELLANEOUS	8-10	4	4-6

Lodging facility estimates include parking, set-back, landscaping, swimming pool, restaurant facility, administrative and service areas, and transient rooms. One-story development is assumed.

Data on typical lot size and site coverage configuration of structures, parking space ratios, and other development characteristics of actual facilities like those indicated for the DWGNRA area, form the basis for the respective land use estimates.

Imaginative orientation of structures with respect to interesting topographic and other scenic features may allow developers to make more intensive use of their sites. Since rising land price trends will be working to reduce the amounts of land for development of these activities, it is very unlikely that any of these commercial facilities will be set off by itself in a very large tract such as a former farm,

In terms of their mere numbers, these DWGNRA commercial acres (fewer than 400) would appear to be of relatively minor significance. The amount of land devoted to these uses would be but one-tenth the lowest estimate of land to be developed in housing alone during the 1960-1975 period.

Compared with the additional 6,000 to 20,000 acres estimated for housing development in the 1975-1985 period plus the land that will be required for commercial facilities and public services for these residential areas, the DWGNRA commercial uses seem very small indeed. Yet the true importance to the DWGNRA counties of this inevitable and necessary adjunct to the recreation project, is far greater than actual land area alone would indicate.

The locations of these facilities and the physical forms they will take bear strong implications for the patterns of traffic movement through the DWGNRA area. The quality and appearance of these establishments will affect not only the values of the land they abut but also the desirability of the land for other uses, many of which might be capable of contributing far more heavily to the over all economy of the impact area. Thus the manner in which these developments occur will be very much a matter for concern of the communities where they will locate.

DIRECT IMPACT - INVESTMENT AND THE TAX BASE

Very gross estimates of the amount of investment in land and buildings required to provide the commercial services for DWGNRA fix a range between \$21,000,000 and \$45,000,000. For the purpose of this calculation the land portion of the investment shown in Table 21 is based on estimates of typical purchase prices for land abutting main roads. They reflect the pre-DWGNRA values of land and existing improvements. The balance, then, or the \$20,000,000 to \$40,000,000 estimated cost of constructing the new commercial facilities 5/ would be the net contribution to the local communities' tax base.

This is quite apart from the impact which DWGNRA or other forces operating in the four contiguous counties might have on the base value of the land itself, an impact clearly inflationary but of a magnitude which cannot be gauged at this time.

While the DWGNRA-oriented commercial development may increase the value of the specific sites on which it is located by 20 or 30 times, the total effect is relatively small in terms of the over all picture for the counties involved. Table 21 compares the magnitude

5/ Construction expenditures on commercial facilities related to DWGNRA are estimated on the following basis: restaurants, 120,000-240,000 square feet @ \$20 per square foot; grocery stores, 15,000 square feet @\$20 per square foot; motels, 3,000-6,500 units @ \$5,300 per unit; gasoline service stations, 25-50 @ \$15,000 each; and miscellaneous, 53,000-90,000 square feet @ \$20 per square foot.

TABLE 21. ILLUSTRATIVE ESTIMATES OF INVESTMENT MAGNITUDES IN THE FOUR-COUNTY AREA AROUND DWGNRA

DWGNRA Dam, Reservoir, Power & Recreation Facilities	1966-1974				
Land:	\$ 62,205,000	1/			
Construction:	\$139,243,000	2/			
Total:	\$201,448,000				
Access Highway System for DWGNRA					
Land:	\$ 1,600,000				
Construction:	\$ 43,000,000				
Total:	\$ 44,600,000				
Commercial Facilities Related to DWGNRA			1970-1980		
Land:	\$ 600,000	-	\$ 2,600,000		
Construction:	\$ 20,000,000	-	\$ 42,100,000		
Total:	\$ 20,600,000	-	\$ 44,700,000		
Residential Development - Year-round & Vacation Houses				1960-1975	1975-1985
Land:	\$ 11,400,000-	\$ 17,400,000		\$ 16,700,000-	\$ 59,200,000
Construction:	\$ 183,000,000-	\$ 278,000,000		\$ 267,200,000-	\$ 946,800,000
Total:	\$ 194,400,000-	\$ 295,400,000		\$ 283,900,000-	\$1,006,000,000
Facilities Related to Housing Development					
Land:	\$ 70,000,000-	\$ 77,000,000	3/	\$ 85,000,000-	\$ 339,000,000
Construction:	\$ 140,000,000-	\$ 150,000,000		\$ 170,000,000-	\$ 680,000,000
Total:	\$ 210,000,000-	\$ 227,000,000		\$ 255,000,000-	\$1,019,000,000

1/ Includes resettlement and administrative costs. Source: 1962 Corps of Engineers, Delaware River Basin report, Volume X. Estimates are: 14,800 acres for the dam and reservoir at \$16,713,000 and 9,500 acres for immediately adjacent recreation facilities at \$8,080,000. A December, 1964 report of the Corps Summary Tabulation and Acquisition Cost Estimate shows the additional 47,675 acres in the National Recreation Area at \$37,412,000.

2/ Source: Corps of Engineers, Op. Cit., 1962.

3/ Estimated at one-third total cost of facilities.

of investment in these commercial activities with some other developments that will be occurring in the area during the same period.

There will be, of course, the investment in DWGNRA itself -- the dam, the reservoir, the power, and the recreation facilities -- with all its implications for employment and expenditures in the area. Highway access construction of one sort or another will also be a major activity in the four counties. One pattern is suggested here merely for purpose of computing the general magnitude of expenditure. 6/ Over and against these investments the prospective development of housing and related facilities implied in Chapter IV stands out as an even stronger influence on the communities' respective tax bases.

6/ If a scenic highway-access road system were to be constructed to serve DWGNRA its cost might be roughly assessed as follows: 80 miles of main scenic highway @ \$600,000 per mile (exclusive of land acquisition) and 46 miles of access road to Park entrances @ \$100,000 - \$170,000 per mile, totaling between \$51,000,000 and \$57,000,000. Of this amount about 20 percent is already included in the Corps of Engineers' Delaware River Basin report, Volume X of 1962 under the category covering relocations of existing roads (e.g. U.S. Route 209 in Pennsylvania). Of the remaining \$43,000,000 a sizeable part has already been earmarked by the State of New Jersey for dualization of U.S. 206 (of which approximately 13 miles would be incorporated into the main scenic highway system as envisioned.) Purchases of approximately 1,600 acres for additional highway corridor and right-of-way would be involved.

Translated into acreage of new residential development on the basis of one quarter acre per dwelling unit, the housing construction estimates of Table 17 indicate that approximately 3,800 - 5,800 acres will have been developed between 1960 and 1975, and another 5,600 - 19,700 acres between 1975 and 1985. An average investment of \$12,000 in the construction of each unit would produce totals in excess of \$180,000,000 for the 1960-1975 period and between \$260,000,000 and \$950,000,000 for the decade following.

Investments in the new public facilities necessary to serve the residential development will be equally large. The estimates shown in Table 21 are based on figures from the Regional Plan Association Spread City for projected infrastructure costs per household added in the region between 1960 and 1985.^{7/} Their estimated costs for highways, schools, health and welfare activities, and "other", come to \$13,500 per household of which approximately 85 percent or \$11,500 would be borne by governmental units. Additional categories of infrastructure -- colleges and universities, and parks and recreation -- amounting to \$2,025 per household, and \$3,000 estimated investment by gas, electric, and telephone companies are omitted from this total. Water supply and sewerage are included here in the construction cost of the individual houses since so many of the houses in the DWGNRA counties are being built with wells and septic tanks.

^{7/} Regional Plan Association, Spread City, Bulletin 100, September, 1962.

If, however, water supply and sewerage systems are to be provided in this area, investment would increase by an estimated \$1,325 per house, of which \$1,124 would be public expenditure. In this case, four-county totals for investment in residential-related facilities would be \$14,000,000 - \$15,000,000 higher than shown in Table 21 for the 1960-1975 period and between \$17,000,000 and \$167,000,000 higher in the 1975-1985 decade.

These community facilities will all require sites accessible to the population they will serve. Commercial activities will be required as well.

When the DWGNRA-related development is held up against other prospects for the four-county area sharp contrasts are revealed. Apart from the creation of the reservoir-recreation complex itself, DWGNRA's impact on the surrounding area -- in terms of land coverage, magnitude of investment and period of time over which the development activity will be sustained -- is clearly exceeded. The residential and related development which will be the year-round lifeblood of these communities cannot but have a deeper impact on the area in most respects, than the seasonal DWGNRA-oriented activities.

DIRECT IMPACT - EMPLOYMENT

When the various expenditures of DWGNRA visitors are distributed according to the recipients, the portion going to wages in each category of business provides a key to the impact of DWGNRA on local employment. It is to be expected that this employment, like the recreation area attendance would be subject to seasonal peaks. Table 22 gives an indication of the steepness of these peaks.

TABLE 22. ESTIMATED IMPACT AREA EMPLOYMENT DIRECTLY GENERATED BY PROJECTED DWGNRA VISITOR EXPENDITURES

(Expenditure and Seasonal Wage Figures in Thousands of Dollars)

Category	Annual Visitor Expendi- ture	Summer Season (60% of Annual)	Summer Season (80% of Annual)	14-Week Wages (at 60%)	14-Week Wages (at 80%)	Weekly Wages (at 60%)	Weekly Wages (at 80%)	Average Weekly Wage ^{2/}	Summer Employment	Rest of Yr. Employment (at 20%-40%)	Seasonal Employment Differential Due to Park
Total	\$28,500	\$17,100	\$22,800	\$1,900	\$2,500	\$178	\$239	4,500 ± 15% (3,800-5,200)	700 ± 30% (460 - 930)	2,900 - 4,700	
Food											
In Restaurants	9,000	5,400	7,200	400 ^{3/}	450 ^{4/}	70	94	\$45.20	190 - 380	1,100 - 1,900	
For Groceries	1,200	700	900	50	50	2	3	51.20	5 - 10	35 - 50	
Lodging											
In Commercial											
Transient Facilities	5,700	3,400	4,600	1,000	1,400	73	98	44.00	200 - 400 ^{5/}	1,300 - 2,000	
At DWGNRA Campsites	600	400	500	200	300	16	21	53.20	35 - 70	230 - 350	
Transportation											
Gas and Oil	3,000	1,800	2,400								
Other	800	500	600								
Miscellaneous	8,200	4,900	6,600	250	300	17	23	60.00 ^{6/}	35 - 70	220 - 340	

^{1/} On completion of all recreation facilities as planned.^{2/} Source: Bureau of Labor Statistics, Employment and Earnings Bulletins, 1963.^{3/} & ^{4/} This figure adjusted on the basis that \$35,000 and \$46,000, respectively, of weekly summer season expenditures in this category (an amount equal to one-half of the amount of wages paid by proprietors to employees) is paid by visitors directly to the employees in the form of tips and cannot be included in the amount of money allocable to wages. Aggregate wages are calculated on the basis that the following proportions of total receipts would go to cover costs of labor: for restaurants, 20%; grocery stores, 5%; commercial lodging facilities, 30%; gasoline and service stations, 10%; and miscellaneous retail, 5%. These percentages are quite close to those estimated by Marion Clawson in Chapter Two, "Private and Public Provision of Outdoor Recreation Opportunity", Economic Studies of Outdoor Recreation, ORRRC Study Report 24, Washington, D. C., 1962, p. 89.^{5/} If $\frac{1}{2}$ to 1 employee is required to maintain and operate each room, this would indicate that only 200-800 rooms could be kept open on a year-round basis, or no more than a half-dozen sizeable establishments.^{6/} Average non-metropolitan retail trade wage, as reported by the Wages and Hours Division of the Bureau of Labor Statistics, 1962.

Service Employment

The aggregate wages and employment are computed on two separate bases. One follows the earlier assumptions that 80 percent of the annual visitation at DWGNRA will occur during the 14-week Summer Season. The other assumes somewhat more optimistic conditions: that the summer peak will represent but 60 percent of the annual total, spreading the employment opportunities through a larger number of weeks. Even under the latter assumption, the differential between peak season employment and the employment level that could be supported by visitor expenditures on a year-round basis amounts almost to 3,000. This means that approximately two-thirds of all the jobs generated by DWGNRA visitor expenditures will be summer jobs.

The nature of the businesses where the bulk of the employment will be and the nature of a majority of the jobs in themselves, dictate that wage levels for these jobs will not be much above the minimum.

Some of these jobs can be filled by the sons and daughters of summer residents in the area or students from the area home on their summer vacation; some, by other members of the local labor force. The balance of the jobs, however, may attract into the DWGNRA counties an influx of workers from the cities, experienced at these sorts of service jobs, willing to work for the wages offered and eager to spend a few months in a vacation atmosphere even though they may be working most of the time. The implications for low-rent seasonal housing in the area are clear; for the commercial transient lodging facilities, in contrast with the older comprehensive resort developments, will be trying to maximize their rental space and will not be likely to provide quarters for their staff.

Construction Employment

The picture for construction employment is somewhat different. That portion of the construction employment which might be considered generated by the DWGNRA project and allied facilities (because of its relation to total investment) will be neither so sustained nor so great as the portion which will be due to housing and housing-related facilities.

Computed on the basis of Corps of Engineers' estimates of construction costs for the entire Tocks Island complex including DWGNRA at \$139,240,000 8/ and other Corps estimates of 85 on-site man-hours per \$1,000 construction cost for land projects, 9/ the complete construction program would generate a total of 11,800,000 man-hours of employment or approximately 6,000 man-years. Spreading the total employment over an eight-year period, the number of on-site jobs related to this construction would average between 700 and 800 per year. These jobs would be distributed with approximately 41 percent in the skilled, 49 percent in the unskilled, and 10 percent in the professional and supervisory categories. 10/

8/ U.S. Army Corps of Engineers, Delaware River Basin Report; vol. X, 1962.

9/ U.S. Bureau of Labor Statistics, Labor and Material Requirements for Civil Works Construction by the Corps of Engineers; GPO, Washington, 1964.

10/ Ibid.

Employment in highway construction is estimated at a rate of 91 on-site man-hours per \$1,000 construction expenditure.^{11/} The estimated expenditure in this category over and above that already included in the Corps of Engineers' relocations would be about \$43,000,000 and would generate about 4,000,000 man-hours or 2,000 man-years of work. Over an eight-year period, this would average between 200 and 300 jobs. About 60 percent of these jobs would fall in the skilled classification, 30 percent in the unskilled, and 10 percent in the professional and supervisory.^{12/}

Housing and related facilities will be generating construction employment at a rate between 70 and 80 man-hours per \$1,000 worth of construction.^{13/} Estimates for the 1960-1975 period show jobs from this development numbering between 700 and 1,200. Similar figures for the 1975-1985 years are 1,550 and 6,600. These residential construction jobs are characteristically even more heavily weighted toward the skilled categories than the others, with requirements for approximately 72 percent of the total man-hour input from skilled workers, 26 percent by unskilled, and 2 percent by professional and supervisory personnel.^{14/}

^{11/} U.S. Bureau of Labor Statistics, "Labor and Material Requirements: Highway Construction, 1958 and 1961", Monthly Labor Review, April, 1963.

U.S. Bureau of Labor Statistics, "Labor Requirements for Highway Construction", Monthly Labor Review, August, 1961.

^{12/} Ibid.

^{13/} U.S. Bureau of Labor Statistics, Labor and Material Requirements for Private One-Family House Construction; GPO, Washington, 1964.

^{14/} Ibid.

Compared with these estimates in Table 23 the DWGNRA-related commercial facilities might generate somewhere between 70 and 150 jobs over a ten-year period, say 1970 to 1980.

The construction impact of the DWGNRA development parallels the investment situation. That part of the area's overall prospect for activity which gets its impetus from DWGNRA will be fitting into a trend already established, will run its course against the background of the longer run trend, and will have spent its major force while the other continues to gain momentum. DWGNRA and its related facilities will be contributing in a general build-up of the area's construction industry to levels which have a good likelihood of being sustained even after completion of these specific projects.

DWGNRA's impact on employment, both through construction and operation of facilities will help to extend the influence of the Park well beyond its immediate vicinity. Orange County, New York, Northampton County, Pennsylvania, and other communities, as well will feel the effects of the new development as workers from these labor market areas begin to commute to the jobs which will be created.

INDIRECT IMPACT

DWGNRA's presence may also be capable of influencing the course and character of development in its surroundings for which it is not the primary generating force.

In terms of potential influence on its surrounding area the reservoir-recreation complex has been compared with New York City's Central Park. As a rare place where city dwellers may enjoy outdoor recreation

TABLE 23. ILLUSTRATIVE ESTIMATES OF AVERAGE ANNUAL ON-SITE CONSTRUCTION EMPLOYMENT FROM POSSIBLE DEVELOPMENT IN THE FOUR-COUNTY AREA AROUND DWGNRA

Dam, Reservoir, Power & Recreation Facilities	1966-1974		
	700-800		
Access Highways System for DWGNRA	1966-1974		
	200-300		
Commercial Facilities Related to DWGNRA		1970-1980	
		70-150	
Residential Development - Year-round & Vacation Houses	1960-1975		1975-1985
	400-700		900-3,500
Public Facilities Related to Residential Development	1960-1975		1975-1985
	300-450		650-3,100

and find peace in a pleasant natural setting, DWGNRA will be filling important needs of the population. As a sizeable tract of green space held permanently out of development while the growth of Megalopolis surges around it, DWGNRA can strengthen the identity of the surrounding area. DWGNRA can play an important role in the large-scale "design" of the region. If new development chooses not to turn its back on the Recreation Area but to focus upon it, a close relationship will have been established between the open space and values of the adjacent land. The extent to which this will occur, of course, will depend more on the nature of these other developments than on DWGNRA itself.

The Recreation Area may become a very important factor in accelerating the rate of land development in the adjacent communities. There is little question that the publicity which has been and will continue to be given to the DWGNRA project will augment the efforts of real estate developers and vacation home promoters to focus attention on the surrounding area. Moreover, DWGNRA itself will be a major environmental "plus", for homesites in the nearby developments. Accessibility to the full range of facilities planned is already a prominent feature in the sales literature for prospective purchasers.

The same accessibility of popular water-oriented recreation facilities and the aesthetic values in the region as a whole may act as catalysts for accelerated industrial and commercial growth as well. Where sites exist that are peculiarly well-suited to comprehensive industrial park-shopping center-residential community development this may be particularly true.

If, however, the general environment of DWGNRA should be allowed to deteriorate through low standard construction, water pollution, denuding of the landscape and destruction of other natural assets or chaotic

and ugly highway strip development, the potential benefits of proximity to DWGNRA would be of little effect in attracting good, new development. Nor would these benefits constitute sufficient compensation to today's investors in the area for losses in economic and/or use value of their property. In short, DWGNRA offers opportunities but no guarantees.

THE OPTIONS FOR ORANGE COUNTY

Spelled out as they are at the present time, DWGNRA's plans show destination areas in Pike and Monroe Counties, Pennsylvania, and Sussex and Warren Counties, New Jersey. This situation implies none but the most negligible commercial impact from the project in Orange County, New York. The commercial establishments to provide goods and services directly to the Park visitors will tend to choose advantageous locations near as possible to the DWGNRA visitor concentrations. There is no dearth of such sites in the immediate vicinity of the Park.

Of course, residents of Orange County together with other neighboring communities will be able to share in the newly-created employment opportunities discussed above. Moreover, DWGNRA as an image and an environmental "asset" can be extended to apply to Orange County as to the four counties immediately bordering on the Recreation Area. As for commercial activities oriented toward the recreation visitors, though, only the most specialized, carefully planned and competitively unique in the area will have a prospect for success. It is important to emphasize that any tourist-oriented development in Orange County must have strong drawing power of its own for the DWGNRA trade alone will not support it. Orange County entrepreneurs would be well-advised, then,

to think in terms only of the most extraordinary and efficient operations, if they wish to attract DWGNRA visitors at all.

Clearly, Orange County -- and the Port Jervis area in particular -- will find their best interests for economic growth in directions other than DWGNRA.

If eventual extension of DWGNRA into Orange County does prove feasible and does receive Congressional authorization, the picture for the Port Jervis area and the southwestern tip of Orange County vis-a-vis DWGNRA will look quite different. A direct impact may, in that case, be estimated in a manner similar to that in the four Pennsylvania and New Jersey counties and will occur in proportion with the capacity of whatever recreation facilities may be planned for the additional New York destination area.

ANALOGOUS RECREATION AREAS STUDIED
AND EVALUATED FOR THEIR RELEVANCE
TO DWGNRA

1. Data on many large reservoir recreation areas presented in ORRRC study reports, especially No. 24, Economic Studies of Outdoor Recreation; Washington, 1962.
2. Cape Hatteras National Seashore, North Carolina.
3. Cape Cod National Seashore, Massachusetts.
4. Assateague Island National Seashore, Maryland.
5. Norfork and Bull Shoals Reservoir, Missouri and Arkansas.
6. Harry Strunk Lake, Swanson Lake and Endes Reservoir in southwestern Nebraska.
7. Tennessee Valley Authority Lakes and Recreation Development in Tennessee, Kentucky, and Alabama.
8. Texoma Reservoir, Oklahoma
9. Palisades Interstate Park, New Jersey and New York.

VI. THE PRIMARY IMPACT AREA - CONDITIONS AND PROSPECTS

This assignment calls for defining an area of primary impact in which the main effects of DWGNRA will be felt. As the previous discussion has pointed up, such a delimitation is extremely difficult in view of the diverse nature of the impact and the many contingent relationships which must be assessed. For example: so long as no destination area for park visitors is in New York State, the opportunities for commercial recreation facilities and land development connected with DWGNRA, may be minimal. On the other hand the employment opportunities afforded to Port Jervis area residents from construction and facilities in Pennsylvania and New Jersey might be quite substantial. This same situation would apply to Northampton County residents in Pennsylvania and residents of other areas that may be within commuting distance of the Park. In respect to employment the "impact area" might be quite wide.

The problem of delimitation extends to land and facilities development as well. A certain level of demand for commercial facilities and services is anticipated to stem from the visitor expenditures. The Poconos form a major complex of commercial recreation, and existing hotels and motels are expanding. Summer theatres and art centers are being established to serve the existing recreation market. Conceivably some of the DWGNRA "impact" could be absorbed by expansion throughout the Poconos, not just in the vicinity of the reservoir itself.

Location of access roads from the Interstate expressways to connect with Park entrances will also influence where the actual impacts may fall. Since the Park Service does not plan to provide connecting

roads between destination areas inside DWGNRA itself, 1/ the location of the roads between one recreation grouping and another will have additional influence on the adjoining land.

No primary impact area which might be delimited at this time could include all major relationships. With this caveat as a preface, however, there are suggested below limits for that section of the region where the land development pressures and opportunities will be the most intense.

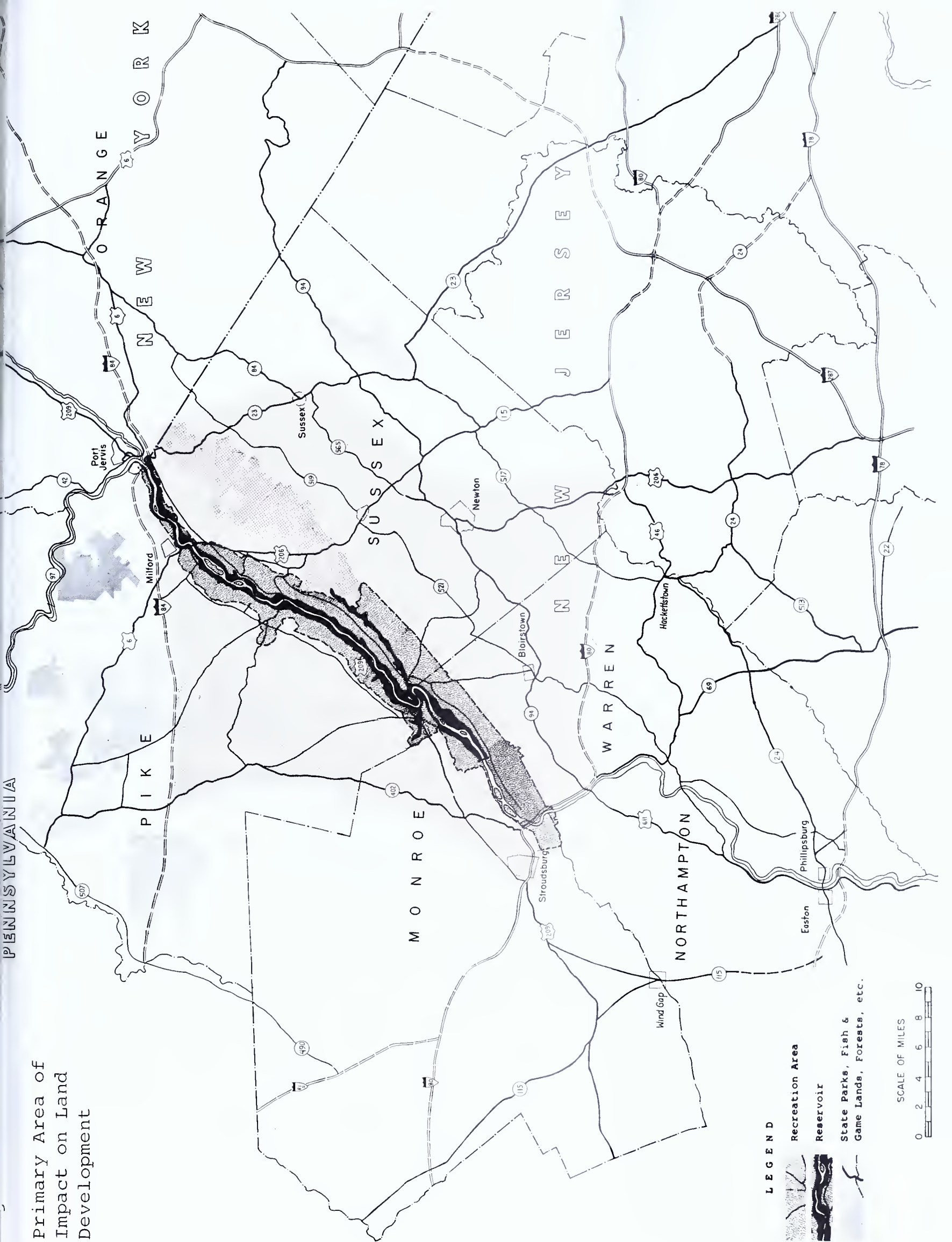
DELIMITING THE AREA

This section is bounded by the Interstate expressways to the North and South and by those transverse roads to the East and West beyond which DWGNRA-bound traffic will probably not be significant. These boundaries are depicted on Figure 9. They are:




1. To the North, I-84.
2. To the South, I-80.

1/ The Park Service wants to hold down traffic movement within the DWGNRA area and does not want to encourage visitors to "shop" between destination sites by using through park roads. Although final determination waits on the DWGNRA Master Plan, it would appear that most interconnecting movement will have to occur outside the Park boundaries.

Primary Area of Impact on Land Development



LEGEND

-  Recreation Area
-  Reservoir
-  State Parks, Fish & Game Lands, Forests, etc.

SCALE OF MILES



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3. To the East, the north-south curve connecting the two expressways formed by New Jersey Route 23 to Sussex County No. 565 to New Jersey 206, and 206 to I-80.
4. To the West, the north-south line formed by Pennsylvania Route 402 to 209 at Marshall's Creek, connecting with I-84 west of Stroudsburg.

Within these boundaries the most direct effects of DWGNRA on land development will be felt. 2/ Traffic bound to, from, and between destination areas will flow here. Motels, shopping facilities, theatres, and other attractions most specifically oriented to park visitations would seek location here. This area would probably also be the site of both vacation homes and year-round residences of people who wanted the value of being close to DWGNRA itself. It is some of the most physically attractive land in the region, and has some subdivision already. (See Figure 10) It contains a number of large farms and summer camps

2/ Port Jervis and parts of Orange County above I-84 have not been included here in the primary impact area of land development so long as no destination area is constructed above Port Jervis. Given the reliance on expressway lines to arrive at DWGNRA, there would be no reason for DWGNRA-bound traffic to ramp off in the north direction. Small portions of Greenville and possibly Deer Park may be within the land development influence, however, depending on where and how the interchange between I-84 and New Jersey 23 is finally constructed.

which might, over time, be available for more intensive development or retained in their undeveloped state for additional open space.

What character of development will take place in this district? Will it be high value or low, in keeping with the standard to be set by DWGNRA or not, protective of the natural environment or destructive, of maximum benefit to the communities and region or less than the potential permits? Clearly these are important questions that this impact study cannot answer with precision. Some clues to the prospects come from close examination of the provisions that have been made to channel traffic in the impact area and the policies governing land use and land development that are now in effect.

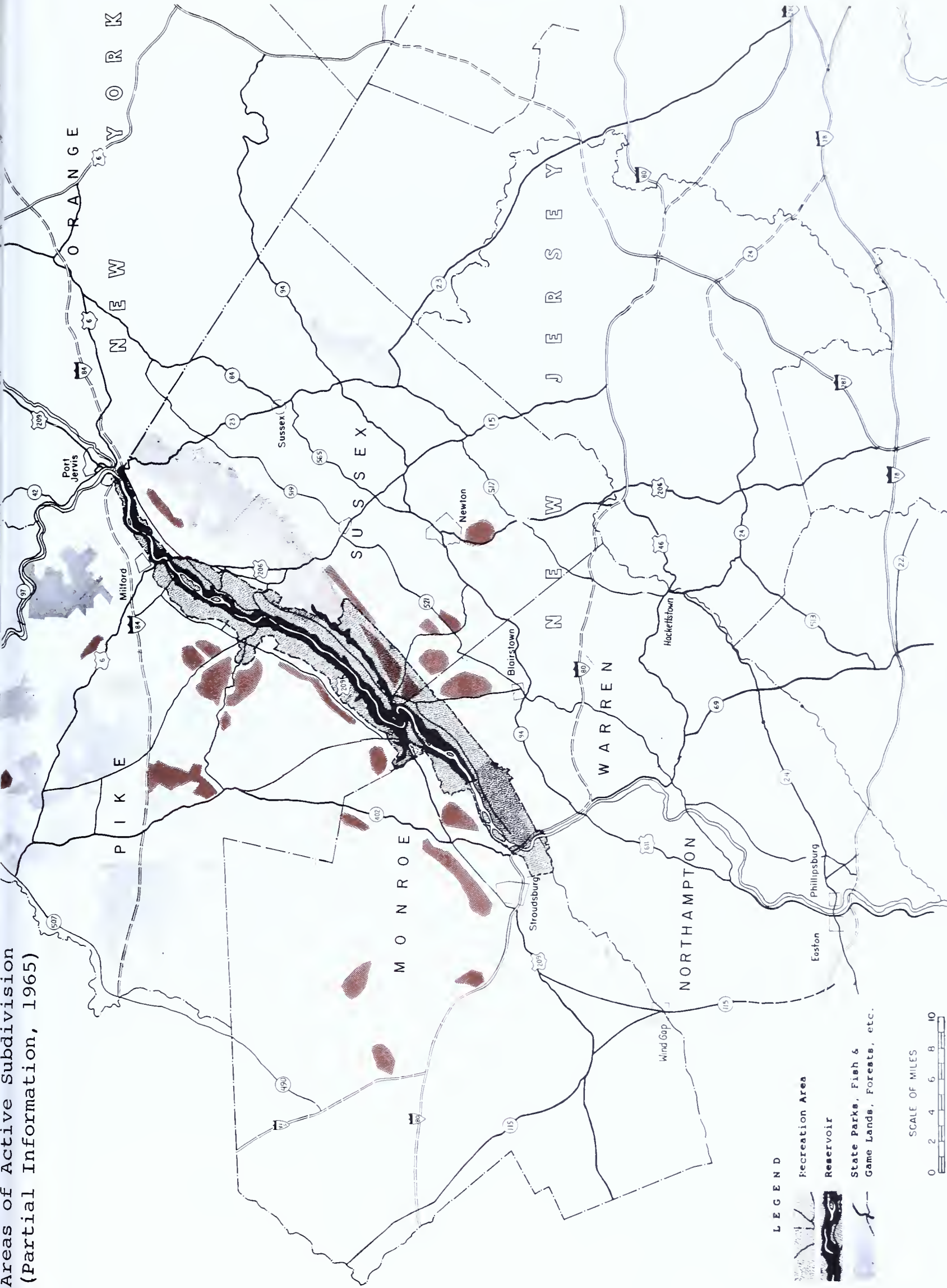
TRAFFIC FLOW

Three types of traffic flow should be considered here: that directed expressly to the DWGNRA project and its individual destination sites, that generated by commercial and residential activities associated with DWGNRA but outside the Park boundaries, and the "normal" flow in the area unrelated to the recreation facility or its satellites. Due to the many possible variations in allied development only the first type can receive comment here. Thus the traffic projections discussed below refer only to volumes expected from park visitations.

Routes and Capacities

The following assumptions are made: access to the impact area will be via either the Interstate

Areas of Active Subdivision
(Partial Information, 1965)



expressways or the reconstructed New Jersey State Routes 206 and 23. These are planned as limited access or otherwise divided highways with two or three lanes in each direction. This express highway network will bring visitors to points from which they will peel off to specific destinations within DWGNRA. Capacity of each of these roads will approximate 1,500 to 2,000 cars per hour per lane in each direction, or ranges of 3,000 to 6,000 cars in each direction. Total capacity of each road would range from 6,000 to 12,000 cars within the impact area per hour in both directions, depending on number of lanes and variations in access limitation. 3/ In Pennsylvania, most traffic to and between DWGNRA destinations will use State Route 209 which will connect I-80 and I-84 and parallel DWGNRA throughout its length. About 27 miles of this road had been scheduled for relocation by the Corps of Engineers at its current two to three lane width along an alignment yet to be finalized but probably just outside the Park boundaries. Maximum capacity of this road is and would be from 600 to 700 vehicles per hour in both directions. Access is and would be unlimited, as distinguished from the express highways which would

3/ Capacity estimates for the road links are ranges of "practical" and "possible" volumes, i.e. at reasonable speeds for the relevant road with minimum interruption of flow. They are based on interpretation of source material in "1975 Transportation Plans", vol. 3, PJ Reports, p. 72, (giving 1964 capacity estimates for various basic road types) and in studies of existing roadway capacities in Sussex County contained in Alvin E. Gershen, Associates, "Transportation and Circulation", Master Plan Series Report No. 5, 1963.

not allow access except at stated interchanges and would by right-of-way controls prevent abutting uses. Now, however, the State Highway Department feels that traffic will be sufficiently heavy to warrant their contributing the additional sum of money necessary to upgrade Route 209 to four lanes.

Some traffic from the West and North might use Pennsylvania Route 402 (from I-84), and the Dingman's Turnpike to connect with 209. Each of these roads is two lanes in width, with a maximum capacity in both directions of about 500 vehicles per hour. In New Jersey, the pattern of access would be much more complex. Direct vehicle access to the Water Gap and Namanock destination areas will be provided by the express highways themselves (Route I-80 and U.S. 206, or N.J. 69 respectively) 4/. Via the most direct routes from the main arteries, Wallpack Bend would be reached over approximately 12 miles of county routes (from I-80) and through Blairstown. Road widths here are two lanes, with maximum capacities in both directions of 400-500 vehicles per hour. 5/

Flatbrook would be reached by about 8 miles of county roads (from 206), or a parallel new road

4/ Because there is so much development abutting U.S. 206 at present, upgrading it to a limited access, express highway would not be feasible according to New Jersey State planning officials. They suggest that a new road with a somewhat parallel alignment might merit study.

5/ Actual capacity may be well below this average figure since at many points these rural roads have steep gradients and very low sight distances.

also with a maximum capacity of 400-500 vehicles per hour.

Tom Quick could be reached from either Route 23 or 206 (or a new road) by approximately three miles of county roads, with two-lane width and maximum capacity of 400-500 vehicles per hour.

In New Jersey, the only means of moving from one destination area to another without returning to the planned express highways, would be over two-lane roads with 400-500 vehicles per hour or less capacity.

Anticipated Volumes

Table 24 converts the anticipated visitor volumes described in Chapter III to expected vehicle flows for each destination area. The figures are given for average summer Sunday (the 14-week period annually when visitations are expected to be most intense), average summer Saturday, and average summer weekday.

The basic ratio used is four persons per vehicle. 6/ In addition to the daily total estimates,

6/ While higher than journey-to-work auto ratios, the above ratios reflect the family characteristics of recreation trips. Although no separate estimates for buses were made, it was noted in Chapter III that about 90 percent of current travel to Palisades Interstate Park is by private cars. Unless special effort is made to encourage bus travel to DWGNRA, even higher proportions of private auto use can be expected.

figures are presented to indicate expected hourly flows over a six-hour peak period during the day. We are here assuming a certain regularity in pattern, whereby most vehicles would enter the area during a three-hour period in the morning (say 8:00 to 11:00), and leave during a three-hour period in the afternoon (say 4:00 to 7:00).

Included in the estimates are the number of vehicles carrying "sightseers" apportioned among the specific destination points within the Park. 7/

By comparing these estimates of flow with the assumptions on routes and capacity above, we can determine the expected adequacy of roads within the primary impact area to handle DWGNRA traffic.

Adequacy of Facilities

In Pennsylvania the road network will be below necessary capacity to handle the traffic even with a widened Route 209. Even on an average summer weekday, the volume will exceed capacity, and on Sundays capacity will be two to three times below what is needed -- for DWGNRA alone.

Added to the traffic, which this analysis considers, is the general traffic which will have to use Route 209 as the main link between Stroudsburg and

7/ One might surmise that many of the sightseers will come at off-peak hours. Even if this category of traffic were omitted from our peak estimates, however, the totals would not be decreased by more than 20 percent.

TABLE 24. INFUX OF VISITOR TRAFFIC INTO DWGNRA PRIMARY IMPACT AREA 1/

Destination	Daily Volume of Traffic <u>2/</u>			Average Hourly Vehicular Flow <u>3/</u>		
	Summer Sunday	Summer Saturday	Summer Weekday	Summer Sunday	Summer Saturday	Summer Weekday
<u>New Jersey Side</u>	<u>29,020</u>	<u>14,720</u>	<u>10,890</u>	<u>9,670</u>	<u>4,910</u>	<u>3,630</u>
Water Gap	2,820	1,540	1,210	940	520	400
Wallpack Bend	12,190	6,260	4,660	4,060	2,090	1,550
Flatbrook	2,480	1,250	930	830	410	310
Namanock	10,280	5,040	3,750	3,430	1,680	1,250
Tom Quick	1,250	630	340	410	210	110
<u>Pennsylvania Side</u>	<u>14,980</u>	<u>7,780</u>	<u>5,610</u>	<u>5,000</u>	<u>2,590</u>	<u>1,870</u>
Poxono	6,540	3,410	2,480	2,180	1,140	830
Egypt Mills	1,900	960	650	630	320	220
Hornbeck Gorge	330	290	280	110	90	90
Dingman Gorge	4,970	2,500	1,860	1,650	840	620
The Knob	1,250	630	340	410	210	110

1/ Based on average of four persons per vehicle (see Table V-3 for visitation estimates) and includes sightseers as well as recreation facility users.

2/ Number of vehicles.

3/ Over a six hour peak. Assumes arrivals and departures occur over three hour period in morning and evening. Hence total daily attendance is divided by three to get average hourly flow during these peak periods.

Port Jervis. In 1961 the average annual daily flow along Route 209 ranged from 1,700 vehicles to 3,400 vehicles. 8/ The traffic volume will clearly increase with time and development in the region. Even more burden will be put on the road by traffic to vacation home subdivisions, many of which will have to depend on Route 209 and the Dingman's Turnpike for access.

Given these anticipated volumes, capacities, and plans, the prognosis for the Pennsylvania side of DWGNRA's impact area is massive traffic jams for at least four months of the year.

In New Jersey the situation will be substantially better, but not without its difficulties. For Namanock, Water Gap, and Tom Quick the direct highway approaches will be adequate. Flatbrook will be well-served except on summer Sundays when capacity will be below demand. Wallpack Bend, however the largest of the destination sites within the recreation project will continually suffer from extreme traffic congestion. Indeed even on weekdays during the high season, the demand would be three times the road capacity to absorb.

Furthermore, any significant volume of sightseers or people moving from one recreation area to another during the day in New Jersey would have to pass over rural roads unsuited to heavy traffic.

8/ According to State Highway Department figures. This would represent a peak hour volume of 250-500 vehicles, using the standard Bureau of Public Roads factor of 15 percent of daily flow.

Many would funnel through already settled areas along these roads, including Blairstown.

Access difficulties of this magnitude could have the following effects:

1. Reduced Visitation. Some people would obviously be discouraged from going to DWGNRA once they knew how difficult it would be to reach the recreation sites. It is not believed, however, that this discouragement would reduce Park attendance by more than 1,000,000 to 2,000,000 visitor-days (10 to 20 percent), in its first years of operation. This conclusion is based on a careful evaluation of the areas of potential origin for DWGNRA visitors and the time-distance factors that would be involved from the main origin areas to the facility. Most of the distance from, say New York and Philadelphia, to the Park would be traveled over the express highways and would consume one to two hours' travel time.

The congestion near DWGNRA would occur on relatively short lengths of roads in terms of total distance traveled and might delay people by 30 minutes to an hour. Given the anticipated high demand for outdoor recreation facilities in the region and the attractiveness of DWGNRA, most potential visitors would still be willing to brave congestion of this magnitude.

Indeed, after a few years of somewhat reduced attendance, the growing demand will so far exceed the supply of recreation facilities, that attendance levels will eventually climb back to their projected peak, and the congestion will be tolerated.

2. Flattened Peaks. Congestion will probably have some effect on spreading out the peak flows both during the day and during the week (particularly as leisure time increases). But the road deficiencies

are so great that flattened peaks might serve mainly to extend the period of congestion; and the amount of time in the recreation day would be reduced for many visitors.

3. Alternative Routes. In Pennsylvania Route 209 will be the only direct access road to most of the destination areas and the only direct connection between them. In New Jersey, however, a number of rural two lane routes, roundabout to be sure, could provide access to Park entrances from the expressways. In periods of heavy congestion, some drivers would switch to these roads. This pattern would, however, spread the DWGNRA traffic and its attendant density to other parts of the impact area. This would possibly extend the congestion to even more roads unable to carry heavy flows.

4. Continued Congestion. Regardless of the alternatives indicated above wherever deficiencies in capacity are apparent congestion will result. It is also important to note that the congestion may be so severe as to back up traffic on the expressways themselves during peak periods, when DWGNRA traffic coincides with that destined to other parts of the Poconos.

To the degree that such congestion hampers enjoyment of the recreation program, or the character and values of uses on the abutting land, the impact area will be affected.

DIRECTION AND CONTROL OF LAND DEVELOPMENT

In Pennsylvania

Developing some means for direction and control of land development is particularly important in the Pennsylvania part of the impact area, because the soils of the region make unchanneled growth a public health hazard. According to the Pennsylvania State Planning Board:

. . . most of the Region is covered by only a shallow layer of soil with rock outcrops and bedrock near the surface, a result of glaciation which has also caused poor internal drainage.

. . . most of the Region is unsuitable for widespread use of septic tanks. 9/

In 1964 the Soil Conservation Service of the U.S. Department of Agriculture completed an extensive and detailed study of soil quality in Pike County. They issued serious warnings about the bearing capacity of the land and its ability to handle both storm drainage and septic tank sewerage. The area's many lakes and streams, draining down to the Delaware River itself, make the prospects of pollution a real danger in the face of the intensive land development projected in Chapter V.

9/ Pennsylvania State Planning Board, "Regional Reconnaissance, Region 3", 1965, p. 20.

Planning and Plans Stroudsburg and East Stroudsburg, occupying only a small proportion of the DWGNRA impact area, have operable physical plans. Monroe County has a County Planning Board with a newly appointed resident planner who has begun work on a comprehensive plan, and Pike County has recently established a Planning Board. Neither of these large jurisdictions has yet recorded or functioning land use policies by which public or private decisions can be guided.

Within the impact area, the following townships have planning boards but no plans yet: Stroud and Delaware Water Gap in Monroe County; and Lehman, Delaware, Milford, Westfall, Matamoras, and Dingman in Pike. Delaware Water Gap, Matamoras, Delaware, Westfall and Lehman have made applications for "701" local planning assistance.

The area-wide sketch plan now under preparation by the State Planning Board can act as an important guide to land decisions, but, within the rubric of state and local governmental relationships, it would have to be adopted by the local communities to become effectively operable; for the major burden of enforcing its provisions would lie with the local jurisdictions. Thus far, however, the local communities have few controls over land development and the imminence of growth pressures within the impact area must be seen in this context.

Zoning Only the Stroudsburgs have zoning ordinances. Zoning, as a means of regulating the use of land, is ideally used to implement physical planning decisions. In situations where no plan exists, zoning can at least exclude unsuitable or incompatible uses from a community or from areas within a community. In the absence of zoning, however, a

community has little power to prevent establishment of land-consuming activities deleterious to its environment.

Within the impact area, this would be of particular concern along the relocated Route 209 where intensive traffic flows are expected and the State Highway Department, under present plans, would not exercise right-of-way control to regulate abutting uses or their access to the road.

Subdivision Controls Monroe County in the summer of 1965 adopted a subdivision regulation which would require minimum lot sizes along with some on-site utility provisions and access roads. This regulation is not retroactive, however, and in the first nine months of 1965, plats totaling over 12,000 lots were filed with the County Assessor. These are not subject to the regulation, nor are those subdivisions established before 1965 and containing probably an equal number of lots or more. 10/

Pike County has no subdivision regulations at all and, like Monroe County, depends on the voluntary interest of developers to keep a high grade of housing growth. Some developers have adopted high standards -- such as the large 4,500-acre Western Heritage tract which installs package sewage disposal plants for groups of houses, along with water systems and electric lines. This is not, however, a general rule.

10/ A great part, perhaps the bulk, of potential subdivision in the county has thus already been recorded and is thus immune from present regulations

According to the State Planning Board:

. . . . Few . . . if any subdivisions provide off-site sewage disposal, and in only a few of the better planned subdivisions has the developer taken the precautions necessary to ensure that water supplies and lakes and streams do not become contaminated. Many of the subdivisions have not yet developed to the extent where pollution problems are a major health menace, but as these are filled and densities increase it is all too likely that some of these lake-front developments may become 'sewage lagoons' in the future.

Lake Valhalla near East Stroudsburg was the most recent example where water supply was contaminated by effluent discharging into wells. Improper installation of wells and the limestone subsoils were the principal cause.

Another example in Pike County was Gold Key Estates which was developed on rock. Sewage could not seep through the rock and it collected as a pool. Expensive blasting of trenches has not yet brought this area up to State Health Department standards.

Similar cases of surface water pollution have occurred. Spruce Lake in northern Wayne County was subjected to severe pollution this past summer because of intensive development of cottages along the shore. Lack of subdivision regulations makes practically every lake in the region

subject to this sort of problem and there are only a few lakes where development has occurred that have not escaped minor contamination. 11/

In the same analysis the State Planning Board points out that the State Health Department can step in only "after a public nuisance or health hazard has been identified". It cannot prevent the contamination in the first place, and not all of the communities have adequate basic health codes that might help.

The Delaware River Basin Commission does have power to enact regulations that would prevent pollution and other mismanagement of the Basin's water resources. In practice, however, the Commission has been reluctant to step in over the jurisdictions of the states and local communities; and the problems have not yet advanced so far as to warrant such intervention.

Given the projected magnitude of residential construction in this area and the potential for commercial facilities associated with DWGNRA, the time will not be distant when pressures to construct homes and hotels will be very strong.

Within the present vacuum of little subdivision control or pollution prevention, this will be an extremely dangerous situation adversely affecting the area's chief resources of land and lakes... not to mention existing and projected developments themselves.

11/ Pennsylvania State Planning Board, Op. Cit., p. 20.

Building and Housing Codes No building permits are required for construction outside of the Stroudsburgs and Lehman Township. Nor are housing and building ordinances in effect outside these communities. Thus there is little regulation of either occupancy standards or construction materials. While some of the vacation houses are well constructed and able to withstand long periods of inclement weather, many others are not. Should there be any widespread conversion of these houses to year-round occupancy in the future, health hazards would be presented.

Lack of official building construction standards is an invitation to build poor quality facilities, particularly in commercial areas that might serve DWGNRA visitors and are subject to seasonal fluctuations in demand.

Billboards To the consultant's knowledge there are no restrictions on billboard size, character, or placement in the impact area. Today, the disposition of billboards along Route 209, particularly near the bridges from New Jersey, is a blight on the landscape. Many of these large and garish signs are quite new and advertise recently-opened subdivisions and attractions in the Poconos region.

Some secondary roads also evidence heavy concentrations of billboards. Today's traffic is relatively light compared with what will pass over 209 and its tributaries when the Recreation Area is established and residential construction has accelerated. Nothing now stands in the way of proliferating the billboards.

Trailer Ordinances Only the Stroudsburgs and Milford have regulations governing the placement and servicing of trailers. Although not deleterious in

themselves, unless adequately landscaped and provided with utilities, trailer parks can be blighting influences. Two large trailer sales agencies are already located in Stroud Township, indicating the market for trailer homes may be brisk.

Prospects for the Pennsylvania Side One might hypothesize that land buyers, builders, and investors in the Pennsylvania impact area will so wish to preserve the beauties of the DWGNRA environment and the value of their neighbors' investments that a high grade of tasteful physical growth will occur. Voluntary adoption of quality standards is possible.

It is not probable, however, and the present condition of road programs, land planning, and land control is an invitation to blight. From time to time residents of the two counties have expressed a fear that DWGNRA will bring another "Coney Island", with all the garish, crowded jumble that Coney Island connotes. Clearly, there is nothing to prevent such an occurrence.

Moreover, the ever present danger of pollution . . . not only of the small private lakes but also of the sources of Tocks Island Reservoir itself . . . looms larger when the growth potential of the area is viewed in context of the public policy vacuum. Prospects for strip commercial development with its attendant mass of intersecting driveways along Route 209 are quite high, as are the prospects for more billboards. This is not to mention the problems of providing schools and utilities systems for poor quality residential development that is converted to year-round use.

One of the most striking features of the prospective situation in Pennsylvania, however, is that no one who has already invested in the area and constructed a house or a commercial property has any protection against the adverse consequences of DWGNRA bound traffic and unchecked land development.

In New Jersey

Questions of land planning and control within the impact area require investigation on the New Jersey side as well, but for somewhat different reasons. Soil and drainage conditions are generally better on the New Jersey side, although areas of severe limitations do exist and sewage disposal and water supply would be of continuing concern under situations of more intense development.

The main difference is that, with the advent of DWGNRA, the New Jersey counties have an opportunity to develop a commercial recreation industry for the first time. Despite the presence of many vacation homes and lakes, Sussex and Warren have had few hotels, resorts, and special tourist attractions. Insofar as DWGNRA will open up a new form of land and economic development, this opportunity will -- as earlier quantitative estimates indicate -- occur within the New Jersey impact area.

Furthermore, the opportunities for year-round residential growth -- as a continuation of suburban trends -- are substantially higher in New Jersey. Presence of DWGNRA at the western edge of the two counties could conceivably swing the balance of desirability for residential development to the central valley abutting the Park. Demand for this area, which might normally be insulated longer from residential growth,

could rise because of access to and protection by DWGNRA. The prospects may become quite apparent as farm owners in the valley find offers from land developers more profitable than maintaining farm operations.

Our question here is again whether the public agencies concerned are prepared to channel the DWGNRA effects and maximize its benefits to the surroundings.

Planning and Plans Both Sussex and Warren Counties have Planning Boards, consultants providing technical services, and county plans that are already influencing public decisions. Each county is aware of its growth prospects. Each has conducted a wide range of studies and has prepared individual policy documents on land use, utilities, transportation, etc., which have been incorporated into the formal plans. This process is a continuing one for both counties and there is willingness to revise programs in the light of new events. Citizen support is substantial.

Although these county-wide programs are of high caliber, the impact of DWGNRA highlights two problems in the Master Plans themselves.

1. The two plans have not been coordinated with each other. This is not a serious difficulty in itself, for the character and development patterns of Warren and Sussex are somewhat different. Nevertheless, along the counties' joint boundary, particularly the section within the DWGNRA impact area, certain discrepancies do arise. The concepts of the two plans are quite disparate. Warren looks to a clustered community development, with much land to remain open and in farming; whereas Sussex sees low density residential growth, rather dispersed in nature, to extend

through the central valley. At the point above Blairstown where the county line is an "imaginary" division of physically homogeneous territory, there is almost no correspondence between the two programs.

Furthermore, Warren County has proposed an express highway to carry DWGNRA visitors from the Water Gap and I-80 through the Park along the lake shore. This proposed road effectively stops at the county line, for Sussex has not adopted a comparable suggestion. An interior park expressway, moreover, is contrary to the Park Service's present thinking on transportation within DWGNRA. Indeed the whole matter of roadways to service DWGNRA, as pointed out above, needs attention.

2. Special land development demands related to DWGNRA have not been programmed in either plan. Sussex County has done a great deal to pinpoint the area which will be most affected by DWGNRA (parts of the central valley, and the remaining portions of Montague and Sandyston Townships which will be "private" enclaves within the public preserves of DWGNRA to their west and High Point to their east). It has called for special planning studies in this area, but no project has been undertaken yet; and Warren County has not devoted special attention to its part of the impact area.

With the efforts of New Jersey's Department of Conservation and Economic Development to prepare sketch plans for the impact area, the above difficulties can probably be resolved.

As far as individual governmental units are concerned, all of the communities in Warren County have their own planning boards, and only Byram among the Sussex County townships is without a planning

board. Actual Master Plan programs have been completed for two townships within the impact area, Knowlton and Pahaquarry in Warren County. (Pahaquarry, of course, will be entirely taken by DWGNRA itself), and one for Montague is under way.

At this point it may be helpful to refer to a statement in Sussex County's bi-monthly "Planning Reports":

It is the municipalities that have adopted or will adopt the subdivision and zoning ordinances, the primary controls in the use of land. One of the most important jobs of the Sussex County Planning Board will be helping to promote the adoption of adequate codes and ordinances in consideration of intermunicipal cooperation. Without it, much of the effect to produce a solid planning program in Sussex County will be merely a token gesture. 12/

Comprehensive though these two county planning programs may be, they have little actual power to control land development and we must look now at the regulatory structure of the municipalities involved to understand how the DWGNRA impact may be absorbed.

Zoning Four of the impact area communities in Sussex County have zoning ordinances (Sandyston, Stillwater, Fredon, and Newton) which are operable to control uses but have not been adapted to account for

12/ Sussex County "Planning Reports", no. 2, April, 1964, p. 4.

placement of commercial recreation facilities engendered by DWGNRA. The following Sussex townships in the area do not have zoning: Wantage, Frankford, Montague, Hampton, and Lafayette. Since Montague is one of the "enclaves" where the surrounding protection of two parks could foster high value development, lack of use control can present serious problems.

None of the townships directly affected in Warren County has zoning. Thus all lack control over roadside uses. In Warren the prospect for strip development on roads serving DWGNRA is quite high.

Subdivision Controls New Jersey state laws provide a fairly high basic measure of environmental protection. Under Chapter 199 of the Laws of 1954 regarding water and sewage, the following applies:

No building permit for the construction of a realty improvement shall be issued by any municipal or other authority in this State nor shall the construction of any realty improvement be begun until the board of health having jurisdiction shall have certified that the proposed water supply system and sewerage facilities promulgated by the State Department as herein provided and those established by local ordinances where such local ordinances prescribe higher standards than those promulgated by the State Department. 13/

13/ State of New Jersey, Chapter 199 of the Laws of 1954, Sec. 58; p. 11-28.

Since this section would refer to commercial as well as residential development, it does provide an inclusive source of control, and it can be implemented.

All of the Sussex County townships in the impact area have subdivision controls which equal or exceed the requirements of Chapter 199. None of the Warren townships has its own subdivision ordinance.

Building Codes All of the Sussex townships have building or housing codes that would set basic standards of construction. None of the Warren communities has such codes in the impact area and here, too, is a potential problem.

Billboards To the consultant's knowledge there are no billboard controls throughout the area, although the presence of advertising signs is felt much less than across the river; some form of control may be in operation.

Trailer Ordinances All of the Sussex townships except Green have some form of trailer code, while none of those in the Warren County impact area do.

Prospects for the New Jersey Side In many respects the New Jersey communities have taken a searching look at their growth prospects and established mechanisms necessary to channel that growth in a manner consistent with stated community goals. The effects of DWGNRA and its potential have been considered and, to some degree, can be channeled within the existing framework. There are significant gaps, however, both in the road program, which is not entirely a function of the local areas to solve, and in land planning and use control which is primarily a local responsibility.

The prospects for quality development, constructed and serviced at high standards, are significantly greater in New Jersey than they appear to be in Pennsylvania. But pressures for land development and gaps in the structure for directing growth (particularly in Warren County communities) make this an equivocal prediction.

Orange County

Both Deer Park and Greenville, the two Orange County townships which, depending on the location and configuration of the I-84 interchange with N.J. 23, may have small amounts of land in the direct impact area, possess some measure of land control. Both have subdivision ordinances and planning boards, and Deer Park is in the process of completing a Master Plan. Proximity of the potentially impacted land to the interchange raises the possibility of commercial use which, along with relationships to abutting areas of Sussex County, has not been directly considered by local planning.

Northampton County

A comprehensive plan has been prepared for Northampton County, and county-wide subdivision regulations have been adopted. There is no county zoning ordinance, but the Northampton-Lehigh Joint Planning Commission strongly encourages all the municipalities within its purview to adopt zoning controls and offers technical assistance and advice on their preparation. Likewise local subdivision adoption and comprehensive planning are urged. Only a few of the townships and boroughs have building codes. As in Orange County control of roadside land uses will be important, although no means yet exist to effect it. This will become more a problem, especially in the County's northeast tip -- as residential and other development accelerate.

VII. ELEMENTS OF AN ACTION PROGRAM

The preceding chapters provide both a comprehensive and a realistic set of dimensions to the impact which Delaware Water Gap National Recreation Area may be expected to have on its surroundings.

The number of visitors to DWGNRA are estimated by points of origin and points of destination; and their modes and times of travel and patterns of expenditure are analyzed. From the expenditure estimates the kinds and magnitudes of economic activity which may flow directly from DWGNRA are calculated. Implications for the nature and level of employment associated with this activity are explored.

As a parallel analysis, the surroundings themselves are studied in respect to their growth prospects independent of DWGNRA and their setting in the context of metropolitan expansion.

Finally, the transportation and land control structure of the primary impact area was evaluated to indicate how, given present conditions and plans, future development is likely to be absorbed.

Several severe problems emerged that bear on the area's ability to absorb new growth at the scale anticipated. Pennsylvania is in more danger than New Jersey, though the eastern side of the reservoir is not without its difficulties. Traffic congestion, water pollution, strains on public services, jumbled and jarring land uses are all likely to occur in greater or lesser measure throughout the area, despite the income and facilities which new growth will bring.

Moreover, the quality of the recreation experience to be afforded by DWGNRA itself can be irreparably damaged by deterioration of the environment outside. As one local official posed the issue before the House Committee on Interior and Insular affairs:

The Pathway to my home must be just as beautiful as my home, for beauty and ugliness are not synonymous. What visitors will witness before arrival into the Park will set the pattern of appreciation, respect, and responsibility. 1/

Yet the area can become one of great charm and individuality. The opportunities for tasteful commercial development, for well-constructed and well-serviced residences, for smoothly-flowing traffic, for an environment beyond the park boundaries that in its own way is as beautiful and conserving of the landscape as that within, are all quite real. Particularly in light of the large and wealthy metropolitan market from which the area will draw its visitors, a high standard of quality and value can be maintained. But it will take concerted public and private effort to reach such a standard, and some bold departures from present practice.

A complete program for action cannot be expected in this study. Serious questions of public policy at several levels of government are involved

1/ Statement of Mr. Jules Marron, Planning Director of Sussex County, April 22, 1965.

and remain to be resolved before suitable measures can be framed. It is possible, however, to suggest some key elements of a program based on knowledge of this area and other places where environmental challenges have been posed.

TIMING AND SCALE

Two conditions must be established at the outset: the time span within which preventive action will be meaningful, and the scale at which that action must take place to be effective.

Action Now

Until the Interstate network is completed, the area will not see full evidence of the development trends depicted. That will be 1972. Meanwhile, the growth pressures that have been making themselves strongly felt already, will continue.

Construction of the Tocks Island complex will begin soon, however, as must the restructuring of the road and land use pattern in the immediate vicinity of DWGNRA.

Any major programs to conserve the impact area should be at least worked out and made ready for implementation during this construction period. Certainly by 1970, or less than five years from now, the machinery for conservation must be in place. This does not brook of much delay.

The Area as a Whole

A program must be region-wide, covering the entire area of primary impact on land development if it is to be successful. Although parts of the area are equipped to handle certain problems, even these communities will not be able to deal with all the problems facing them, nor will they be the only communities confronted with the problems.

Indeed, the most critical difficulties will be the ones shared by all the jurisdictions in DWGNRA's impact area. Partial solutions will be no solutions at all. The only equitable and, in the long run, satisfactory approach to these larger problems will be to meet them at their own scale.

Broad-based local representation, regional scope of interest, and power to take timely, decisive action as necessary are the crucial attributes of the organizations and units of government to undertake the planning for the future of DWGNRA's environs. Therefore the following discussion is particularly directed to the County governments, the State Planning Agencies and highway departments, the Delaware River Basin Commission, and the Tocks Island Regional Advisory Council, a newly created body composed of officials from the six counties (Pike, Monroe, Orange, Sussex, Warren and Northampton) most directly concerned. These groups will have the additional responsibility of relating programs of the various Federal agencies to the local programs and plans.

THE SKETCH PLAN

Preparation of a sketch plan for the impact area is now in progress. This plan, a joint effort

of the Pennsylvania State Planning Board and the New Jersey Department of Conservation and Economic Development Division of Statewide Planning, is the essential cornerstone of a development program for the immediate DWGNRA region. It will structure for the first time, two very important aspects of the over all future development in the four county area: a rational framework for making land use decisions, and the basis for an efficient circulation system to carry traffic from the Interstate highways and expressways to the Recreation Area entrances. The plan will be ready within a few months.

Basis for State Action

Like the regional plans of most other state planning bodies in the country, this sketch plan may be expected to concern itself primarily with establishing the basis for state-level decisions in the near future. Among the most immediate and important of these decisions will be the ones on alignment and standards of crucial highway links on both sides of the reservoir project.

Inextricably bound up with the road (through their relationship with access points and travel patterns) will be the location of the commercial facilities to serve the DWGNRA visitors. The amount and nature of the work involved in developing a framework for these decisions varies between the two states and between counties within the respective states as well.

In Pennsylvania, where county-wide plans do not yet exist, the task of the State Planning Board will probably involve some very basic assumptions about developments in Pike and Monroe Counties. In New Jersey, the task will focus more on reconciling

certain discrepancies between plans for Sussex and Warren Counties which have already been prepared.

Substantive differences notwithstanding, Pennsylvania and New Jersey can work out their respective parts of the joint sketch plan in such a way as to support and be supported by the region-wide functions of the new Tocks Island Regional Advisory Council. By encouraging active local interest in the Council and in planning the States can foster cooperation in implementing the various aspects of the plans.

Inter- and Intra-Governmental Coordination

Preparing the sketch plan and securing its general acceptance will be a complex and time-consuming challenge. Close coordination must be maintained with the Park Service and the Corps of Engineers so that the plans for development within the DWGNRA boundaries dovetail with those outside. Choices will have to be made on sites and travel routes.

Such choices will conceivably lead to conflicts with specific communities, but the best time for resolving such conflicts will be during the planning stage. Thus the States may be expected to work closely with the counties and individual communities to ascertain desires and reconcile issues before final commitment to maps and text is made.

Particularly close cooperation with the highway departments of both states will be critical. The highway departments must be apprised of the importance of simultaneous land use and transportation planning for the area, and should be prepared

to incorporate the concepts of the sketch plan into their own detailed road programs.

An official status for the sketch plan would be extremely desirable, and it is to be hoped that the final proposals could become part of the framework for the local county plans -- both those that are now in existence and those that will be prepared in the future.

Liaison with planning efforts outside the immediate DWGNRA impact area but in close relationship to it would also be expected. Orange County, New York, to the north and Northampton County, Pennsylvania, to the south ought particularly to be brought into the planning process during these early stages.

Because time is so short these coordination activities can plan an important role in mobilizing the efforts needed for early implementation of the plan.

It is also to be expected that the sketch plan will contain recommendations on a program for its implementation. These will be invaluable for the Tocks Island Regional Advisory Council and other local officials and citizens who will be responsible for carrying out the more detailed local aspects of the region-wide program.

THE SCENIC HIGHWAYS

This study has repeatedly pointed out how contingent the various aspects of the DWGNRA impact are upon two strategic issues. These are the systems for carrying DWGNRA visitor traffic from the major

express highways to the Park entrances and the nature and location of commercial facilities to service Park visitors. Both are immediate issues and must be dealt with in concrete terms. The relationships of many jurisdictions are involved and the complexities of the decisions will require the maximum time that can be devoted to them.

The sooner machinery for effectuating these portions of a plan can be set into motion the better. The following suggestions illustrate how these problems might be treated in the planning effort to come.

There has been a great deal of interest during recent months, in a national program of scenic roads and parkways. Under such a program, the Federal government would take an active role in providing scenic driving opportunities as part of an over all recreation experience. As the concept of the scenic highway has evolved, it seems tailor-made for the special opportunities and circumstances prevailing in the DWGNRA area. The purpose of such a road, according to the group in the United States Department of Commerce which has been studying a possible program, is:

. . . . to provide a way through and/or entrance to an area of outstanding scenic quality while preserving and enhancing the resources of the area through appropriate conservation measures 2/

2/ U. S. Department of Commerce, Manual: Scenic Roads and Parkways Study, Washington, 1964.

This objective would be achieved through a variety of controls and standards applied not only to the location and development of the highway itself but to the corridor it traverses. There are two aspects of the protection which would result: On the one hand the scenic vistas, the lakes, streams, woods, hillsides and rural atmosphere would be protected for the viewing pleasure of the travellers using the road. On the other hand, the local communities through which the road passed could be protected from unrestricted encroachment of highway commercial activities.

A great deal of flexibility in capacity and other construction specifications is envisioned under the scenic highway concept. As well as major thoroughfares, roads smaller than those which currently qualify under the Federal Interstate system could be included and assisted.

Proposals for establishing this program will be placed before Congress during its current session. If Congress acts favorably and funds become available for these roads, the DWGNRA area should be ready with its plans and prepared for one of the very first applications of the program.

Such an opportunity would be particularly advantageous to the DWGNRA area for a number of reasons. For one thing, it is clear that a relocated Route 209 on the Pennsylvania side, replicating or slightly exceeding present capacity will be inadequate, as will several New Jersey roads for which upgrading has not been scheduled.

Local communities cannot handle the matter of constructing an adequate highway net themselves, nor can they finance the costs entirely from their

own revenues. A Federally-assisted scenic highway program would provide an opportunity to treat the DWGNRA traffic as a system, solve its problems on a systematic inter-state basis, and fund the necessary costs.

It may be possible, however, to mobilize existing State and Federal road programs to do a similar job, should formal Congressional approval of a scenic highway bill be deferred. Adequate solutions to the severe traffic problems that loom for the DWGNRA region need not and should not wait upon future legislation. 3/

DEVELOPMENT AREAS

The concentration of commercial development in carefully selected and imaginatively developed sites is recommended as the best method of preserving the beauties of the natural environment and inducing the high quality facilities required to attract maximum expenditures. Restricted access on the Park approach roads will enhance safety and discourage disfiguring strip development. The concentration of facilities on sites adapted to intensive, high quality use will make it possible to provide the services required for their development at a minimal cost. The patronage which each establishment attracts will be a market for other enterprises in the grouping and thus each will strengthen the others. Under such circumstances, a well conceived program of promotion could attract the type of investors and facilities ties to make the commercial areas themselves an asset to the region.

3/ Future legislation and scenic highway possibilities notwithstanding, the whole secondary highway system in the DWGNRA impacted region should be studied in light of the basic sketch plan relationships and anticipated traffic volumes.

Land uses in these development areas would be those associated with DWGNRA visitation: restaurants, automobile service stations, fishing and boating supply centers, gift shops, craft centers, information booths, hotels, motels, perhaps first aid stations, art galleries, cinemas or summer theatres.

Development area sites would be selected for their suitability to these uses, relationship with major DWGNRA entrances and main travel routes in the respective counties,^{4/} and topographic or other natural features which, while giving each area a focus and an individual identity could inspire excellence and some degree of unity in the design treatment of the structures to be built there.

Public authorities and private groups in the DWGNRA counties can accept two major responsibilities with respect to these development areas. First, they can actively promote the growth of the areas in keeping with such design and functional plans as will be established. Much in the same way as communities, commonly today, solicit developers for industrial parks, offering assistance with land acquisition and assuring cooperation in providing utilities, the DWGNRA communities can make a positive effort to pinpoint and secure the most desirable sort of development. Secondly, careful controls must be applied to development areas and their vicinity. Restricting highway access has been discussed, and the application of controls over the rights of way

^{4/} These sites would also serve the resident population of the region, although oriented primarily to DWGNRA.

and scenic corridors through which the tourist development roads pass. Zoning and subdivision regulations may be brought to bear on the situation as well and will require conscientious enforcement.

WATER POLLUTION CONTROL

So far discussion has focussed on the issues that loom in the foreground of long-run problems. Another of these is the matter of water pollution. The long-run solutions will, of course, lie in the cooperative efforts of the local governments in the watershed area to establish adequate subdivision and health codes to provide the necessary facilities for treatment of wastes and otherwise protect the quality of the streams that will feed into the new reservoir.

Pending the adoption of adequate measures by the localities, an immediate program for water pollution control is necessary, particularly on the unsafeguarded Pennsylvania side. For land subdivision and development is occurring now and will be proceeding in the future at even more rapid rates. The consultants have estimated that by 1985 the resident summer population of Pike and Monroe Counties (exclusive of camps and resorts) may be as high as a quarter of a million. Allowing this development to continue virtually uncontrolled will, in the long run, only undermine the effectiveness of whatever measures are eventually taken, not to mention increase their ultimate cost.

The Delaware River Basin Commission does have certain powers to act in protection of the water that drains into the Delaware River. Consideration should be given to the question of how these powers may be employed now -- perhaps on a temporary basis until the local communities involved have machinery

in operation through which they themselves can prevent water pollution.

DESIGN AND DESIGN CONTROL

Like good land use patterns, good building and landscape design do not come about automatically. Nor can they be brought about through restriction or force. Efforts can be made to induce good design, however, and clearly bad things can be controlled. Such measures as making highly desirable sites available for commercial complexes, preserving those spots which give the area its image, and actively encouraging aesthetic development have already been mentioned. Other major visual elements in the DWGNRA area have been discussed as well: the Recreation Area itself and the proposed scenic road around it. But there are many details, small and large, which are also important and have a great deal to do with the general feeling of the area and tone which is set for development.

Public buildings are among these; so are maintenance of the roads and roadsides and other open spaces. Here is where the examples are set for the public to follow. The higher the level of public standards, the harder it will be for private development to fall below these standards and still gain acceptance on the market. Community pride is important in these matters. It should be encouraged and nurtured in every possible way.

Billboards and signs are another detail, significant in their ubiquity as well as size. The manner in which information on travel directions, eating places, sleeping accommodations and other matters of interest is presented to tourists very definitely colors their whole feeling about the area.

DWGNRA and all the other new development destined for this region will be bringing more and more new people into the area. They will need to be informed about more and more directions to take, places to eat and facilities to find.

The system of transmitting information through a massive proliferation of signs and billboards has the disadvantages of damaging the very assets which are being promoted and confusing the visitor who is seeking guidance. It is possible to provide information and advertising in a more attractive and effective way through an organized system of uniform, well designed signs but this requires the cooperation of present advertisers as well as those of the future. In the areas already highly developed where numerous signs have already created havoc, the addition of more will compound an almost intolerable situation. A choice between a coordinated system and the chaos which will result if the present practices continue must be made before the DWGNRA visitors begin to stream into the area.

THE LONG-RUN PERSPECTIVE

In the long-run, what happens in and around DWGNRA will directly depend on what the local communities choose. Federal and State authorities can assist and finance, and to some degree direct, but the real task of "creation" will be out of their hands. Only inside the National Recreation Area, which promises to become a distinguished achievement, will agencies have complete jurisdiction over the future. It is within this perspective that the Tocks Island Regional Advisory Council achieves its proper importance.

The Council is local, and it is representative. It was formed in response to a felt need on the part of the area to understand and to channel the impact of Tocks Island. The Council's role is purely advisory, and its only power that of persuasion. But this is an important power in American society, and within its realm of responsibilities the Council can be the prime mover in evolving creative solutions to the environmental problems of the region. Specifically, it can do the following:

1. Coordinate the sketch and other planning activities of the area and provide an arena for ironing out conflicting needs and desires among the communities.

2. Press local and higher levels for an adequate highway program.

3. Design a development program for attracting high-grade commercial and residential activities to the area.

4. Commission studies on such area-wide concerns as design standards for commercial development, billboard and advertising standards, zoning, and pollution controls.

The Council is the first such multi-county, interstate regional agency formed in the Northeast. Whatever it does may have significance far beyond the area of its immediate concern. It has an excellent opportunity and a pioneering mission.

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